

THE IRON AGE

Rec'd

Section

A Review of the Hardware, Iron and Metal Trades.

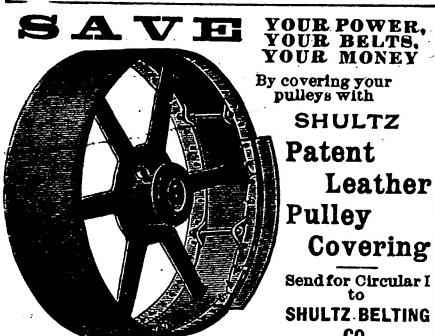
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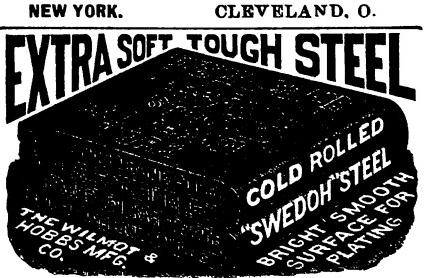
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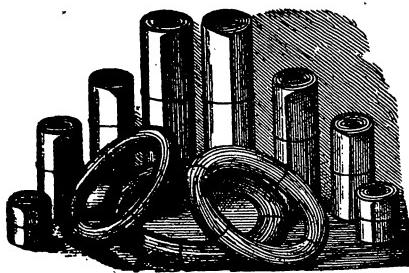
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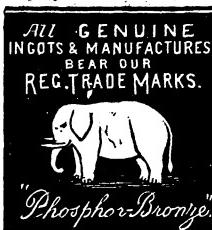
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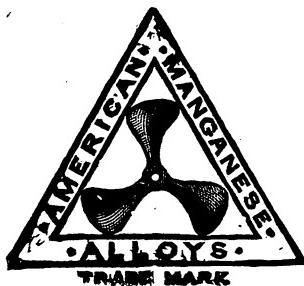


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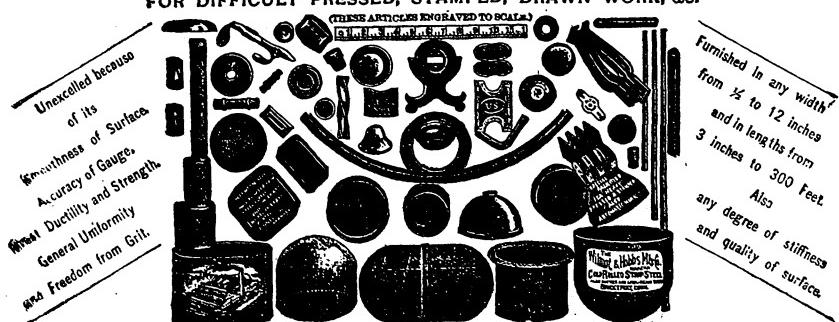
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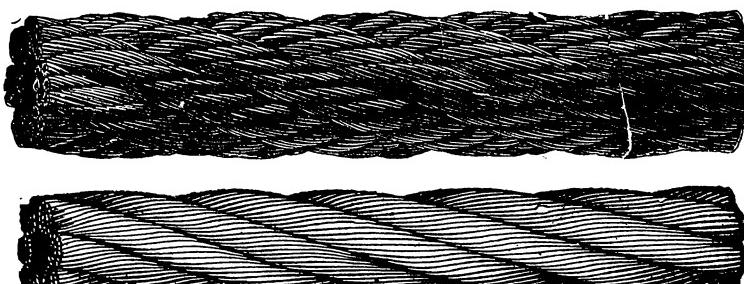
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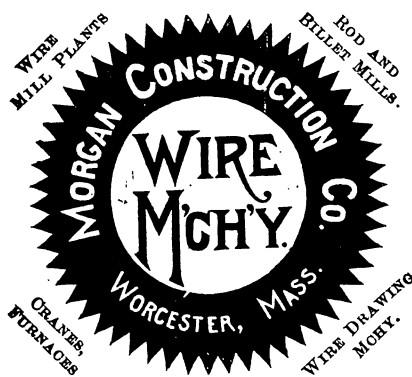
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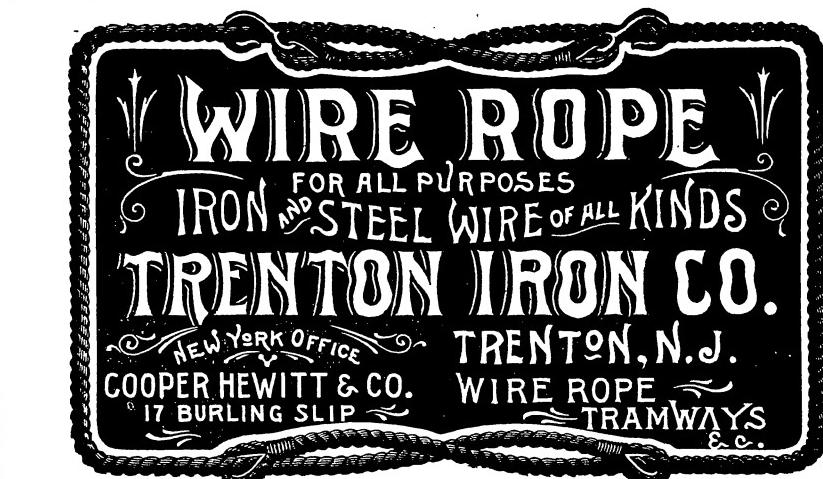
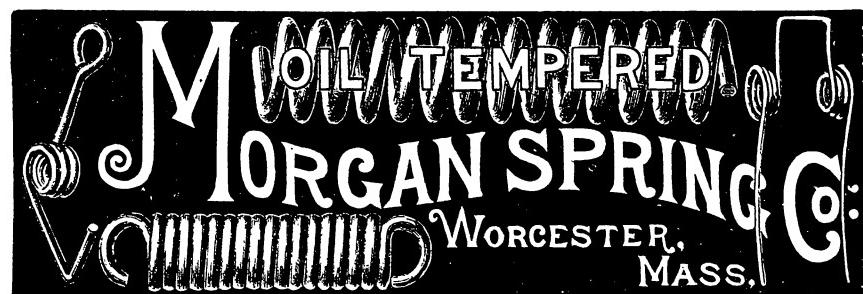
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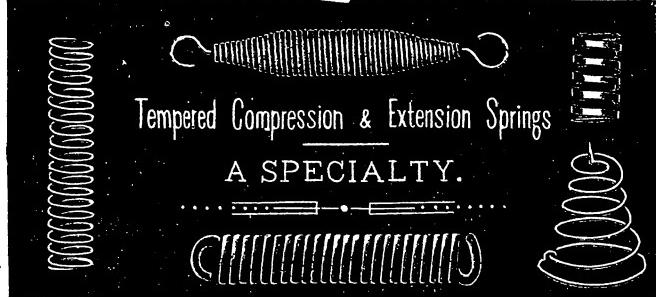
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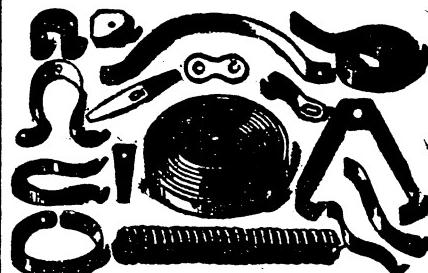
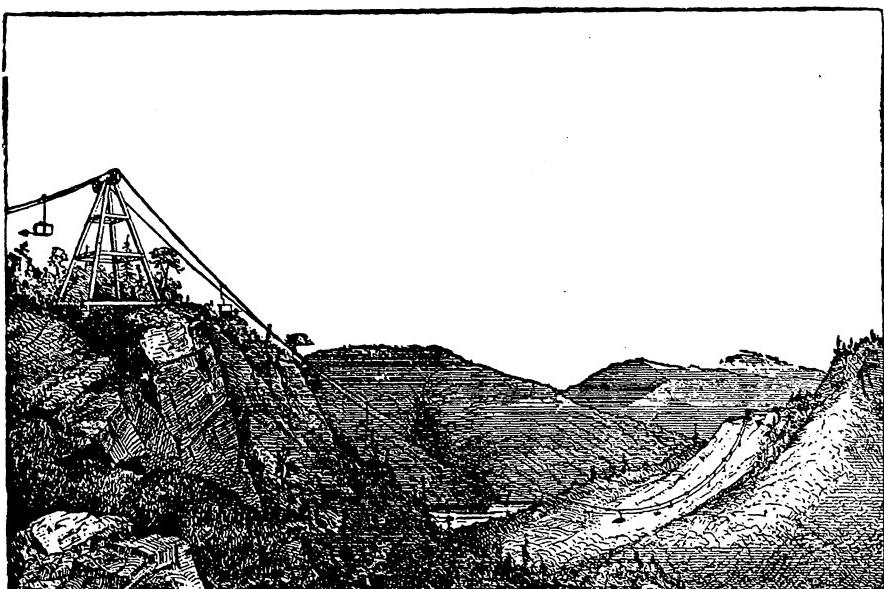
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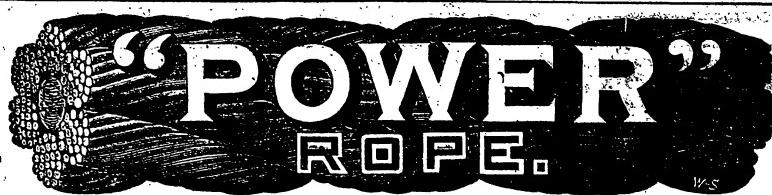
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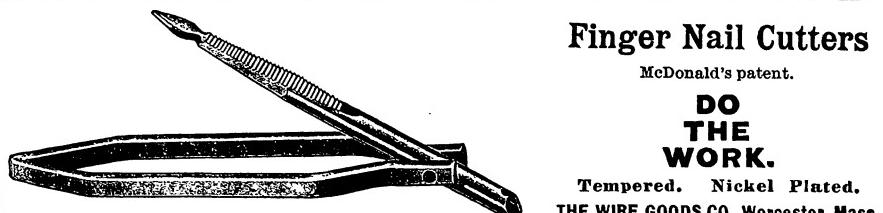
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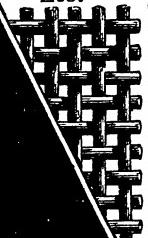
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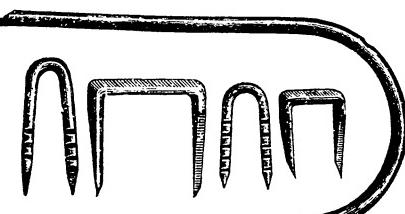
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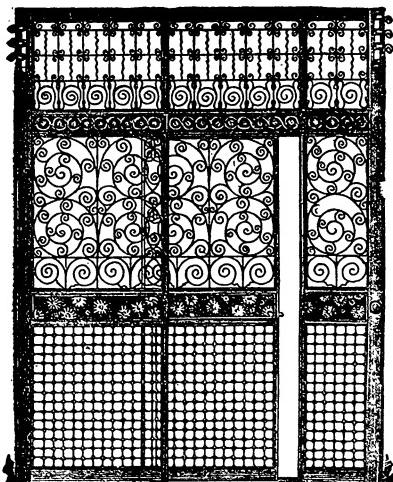
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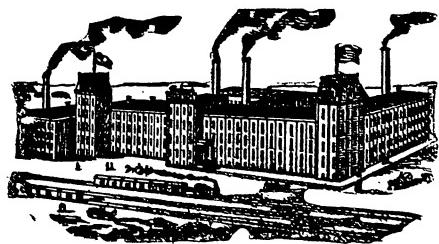
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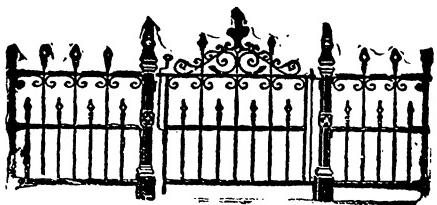
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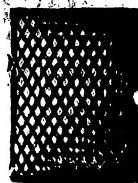


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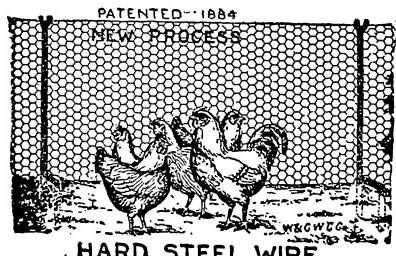
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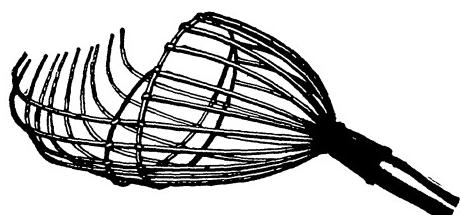


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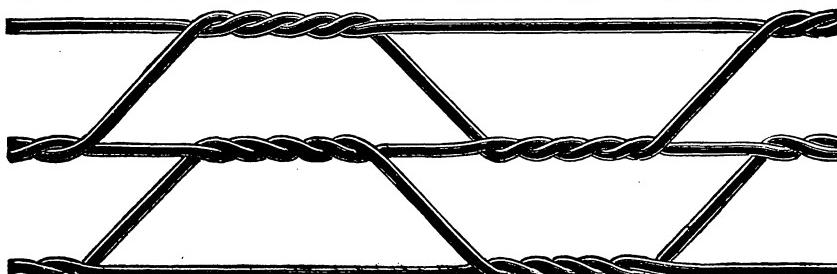
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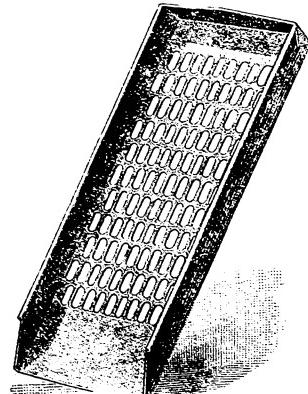
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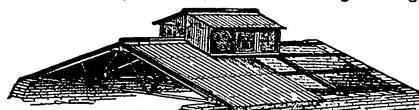
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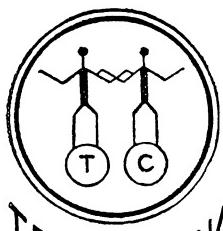
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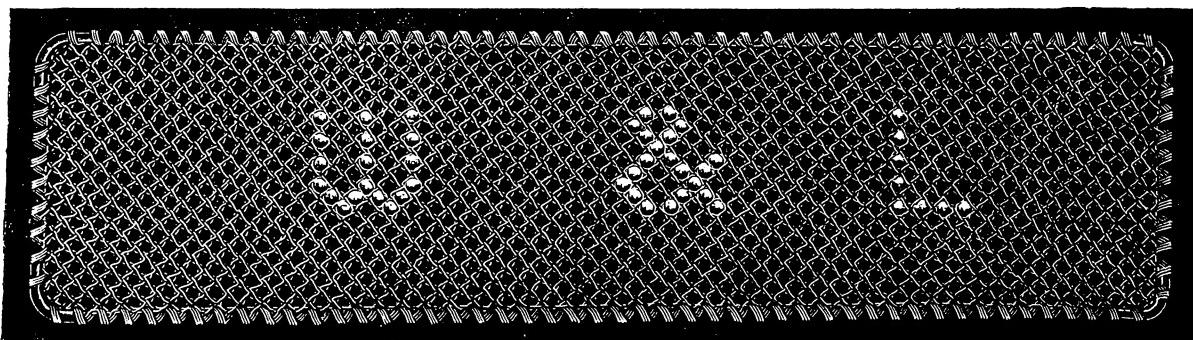
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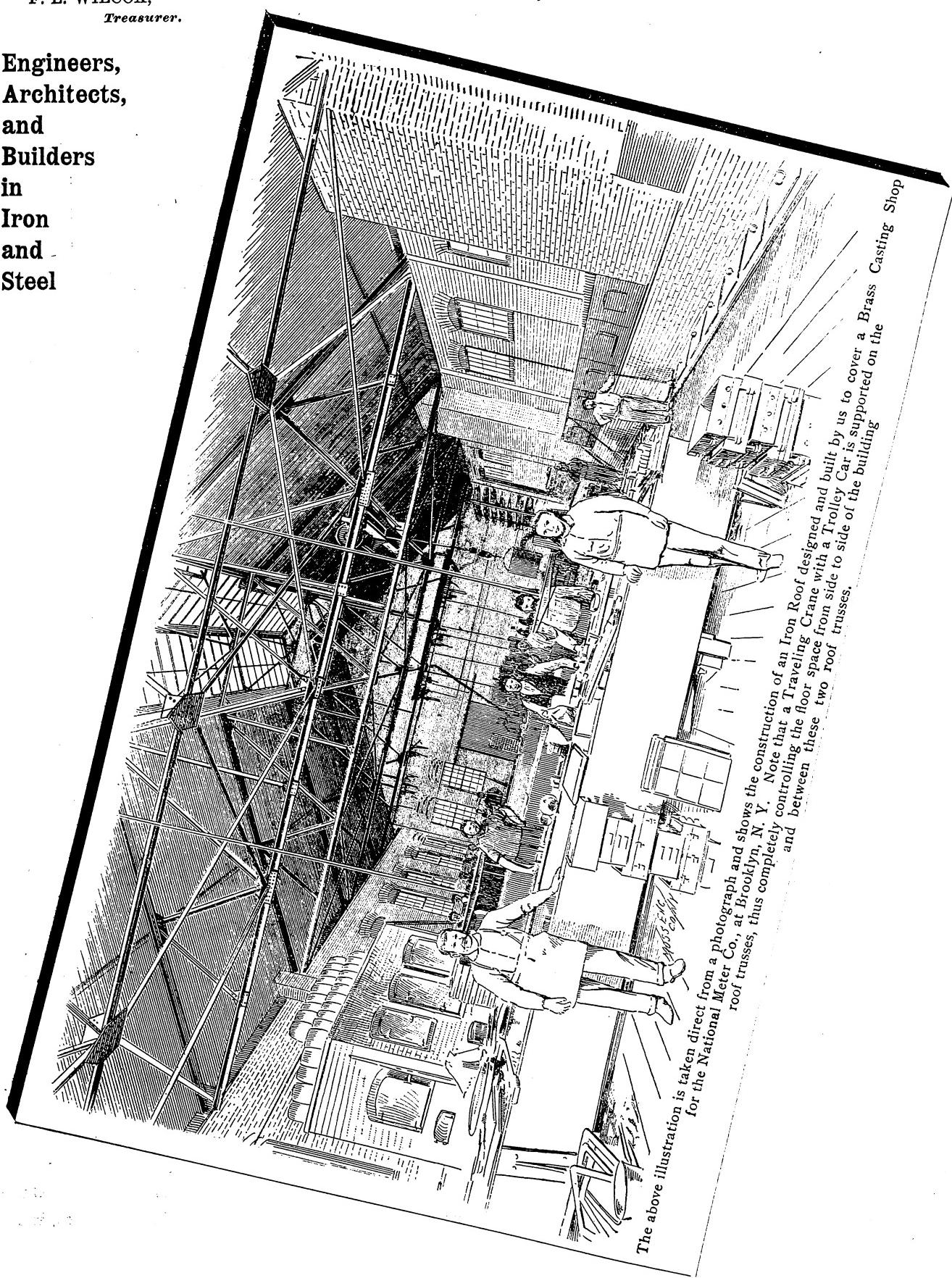
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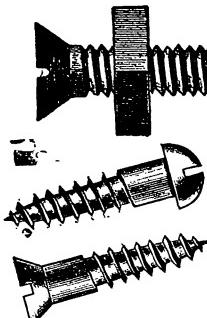
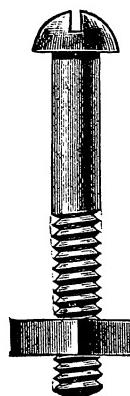
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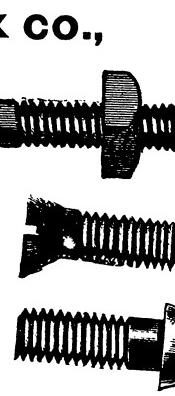
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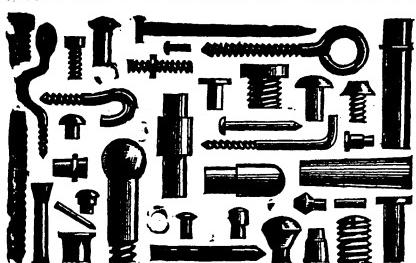
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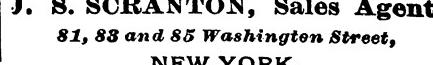
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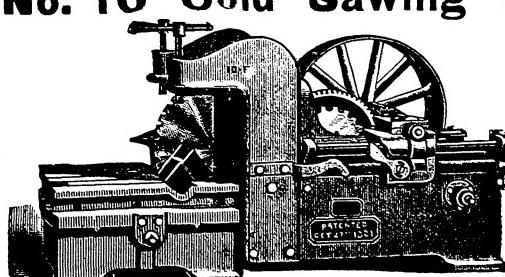
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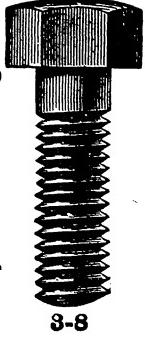
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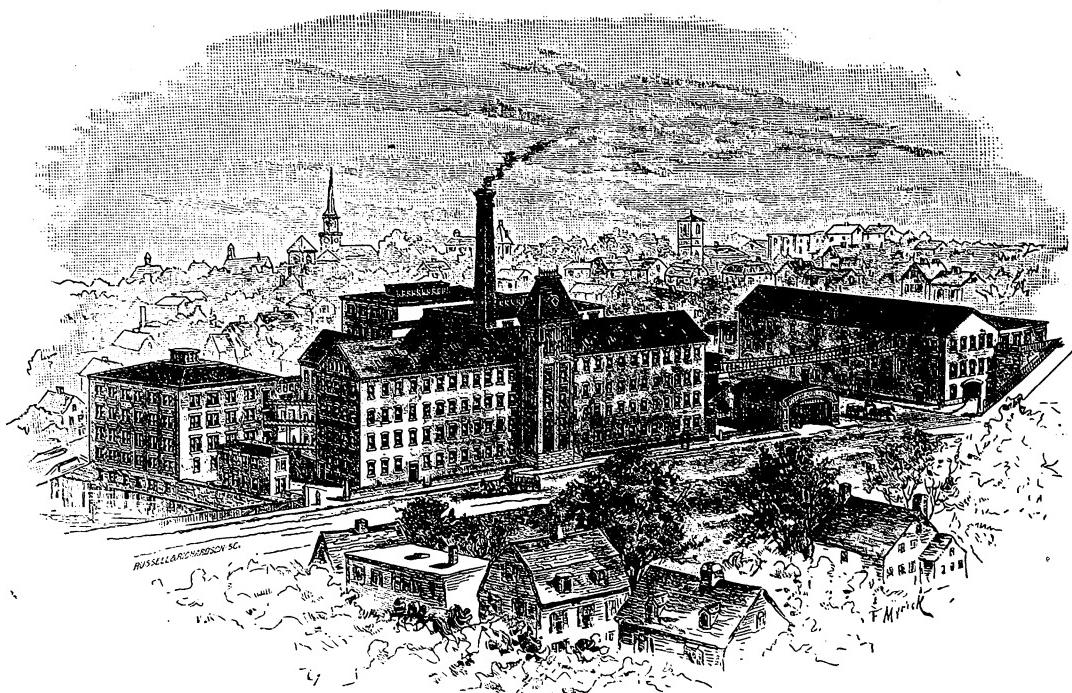
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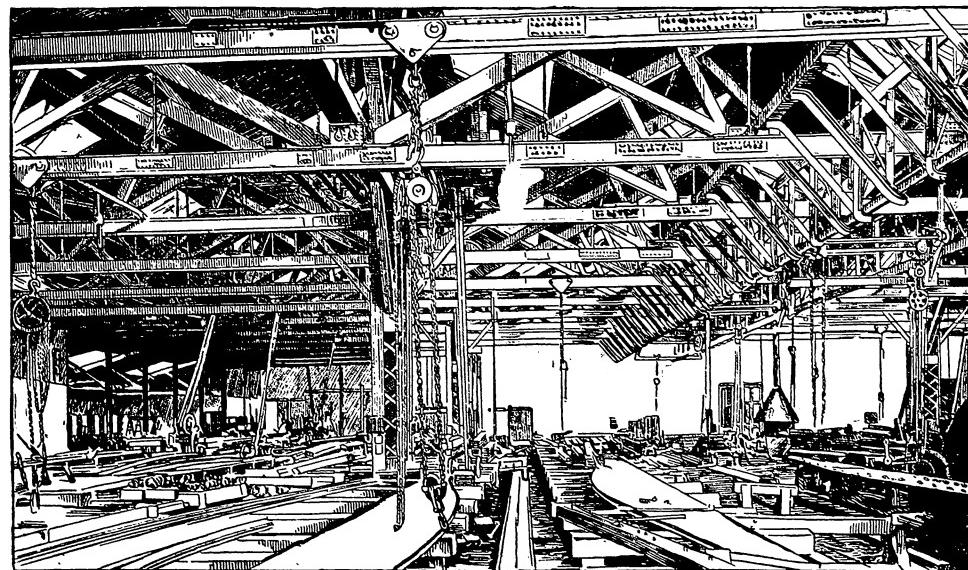
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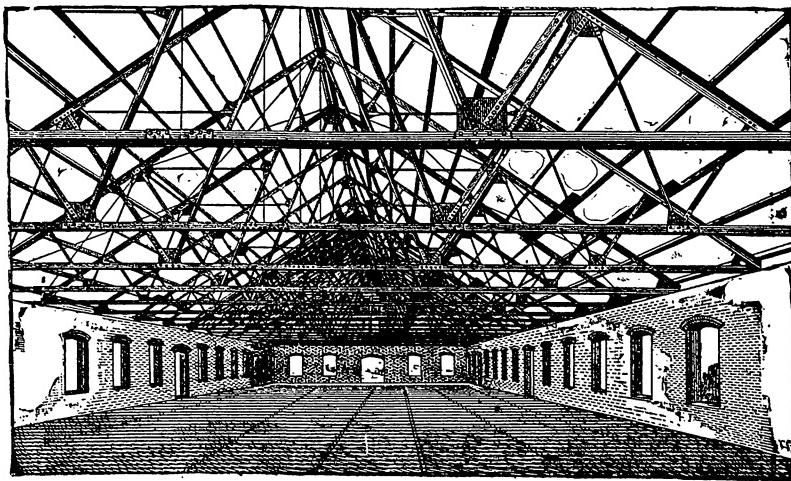
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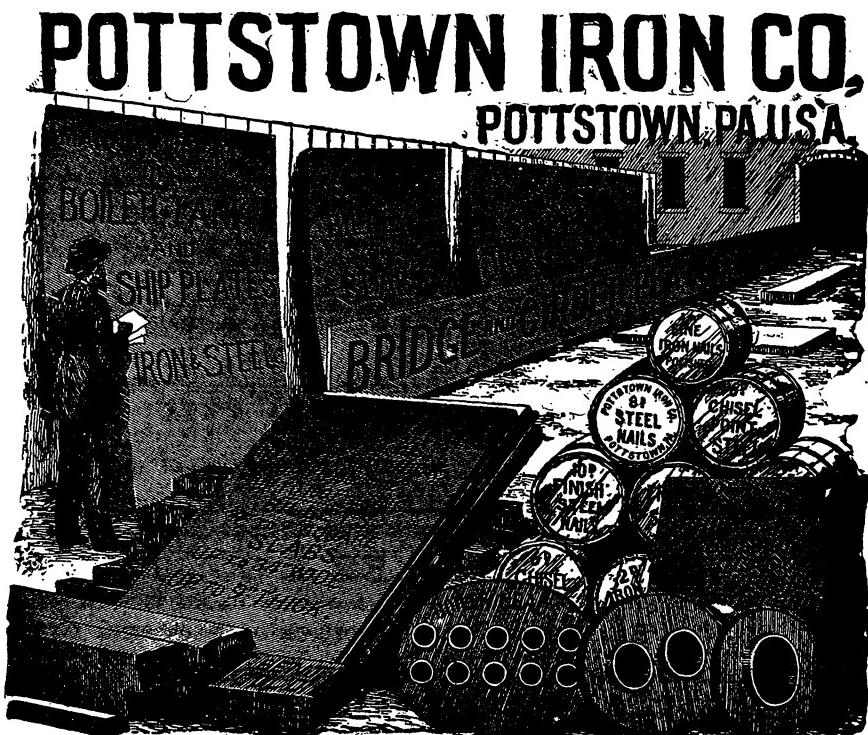
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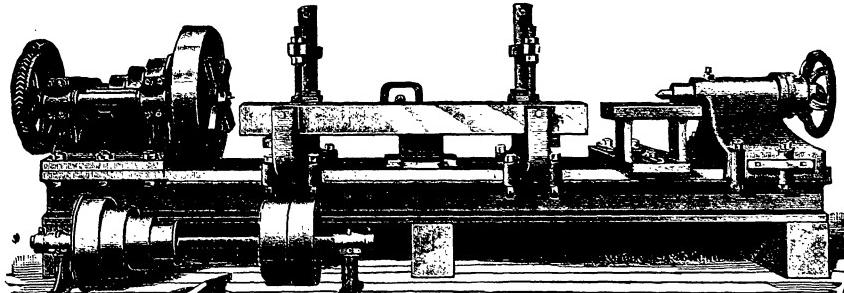
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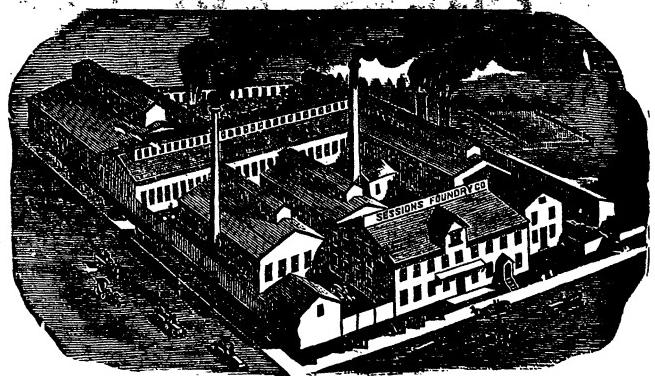
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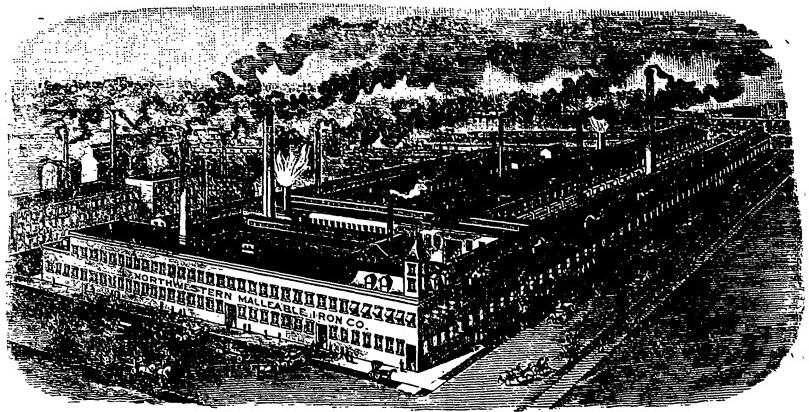
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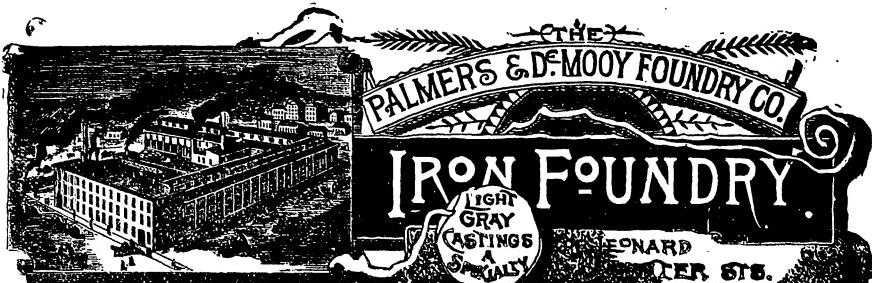
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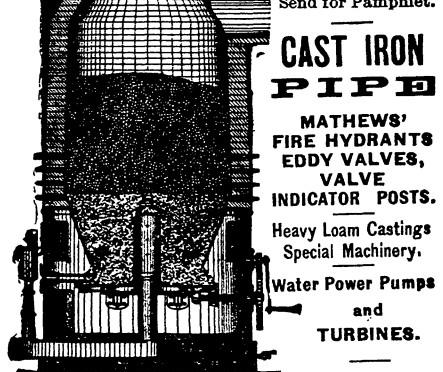
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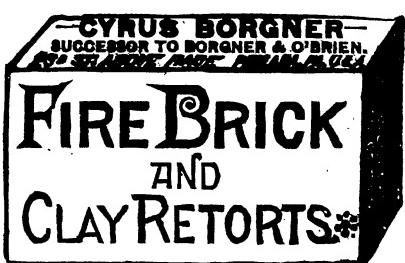
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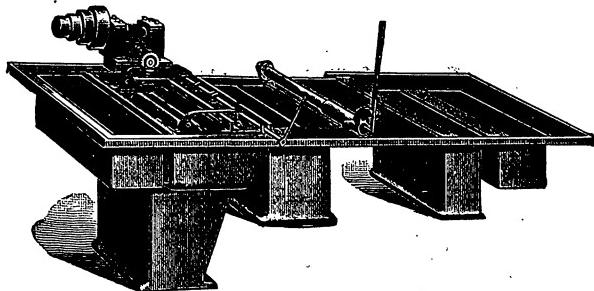
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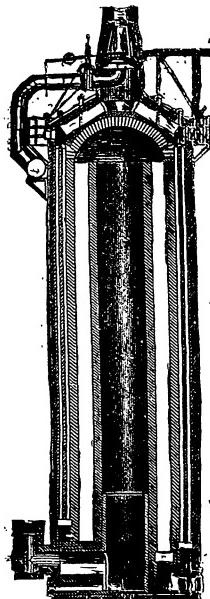
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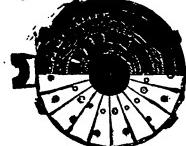


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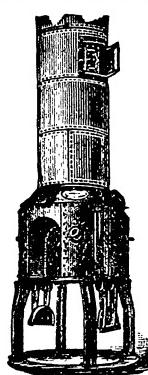
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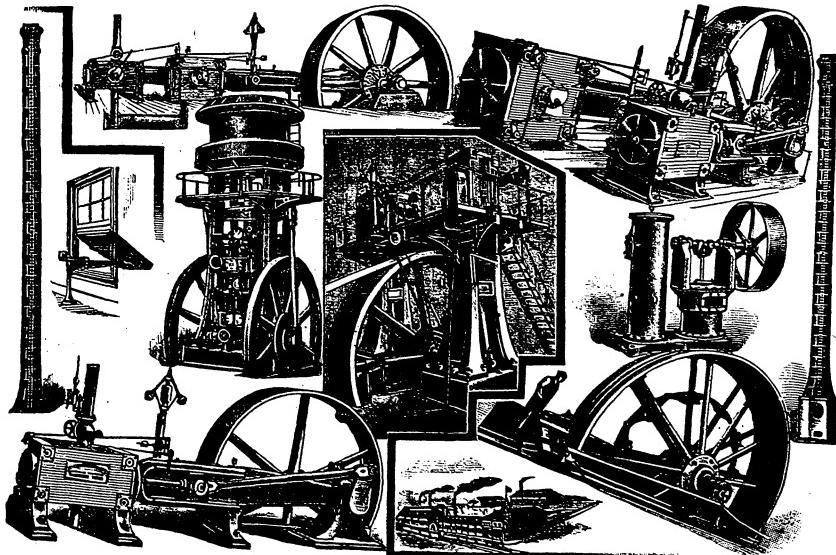
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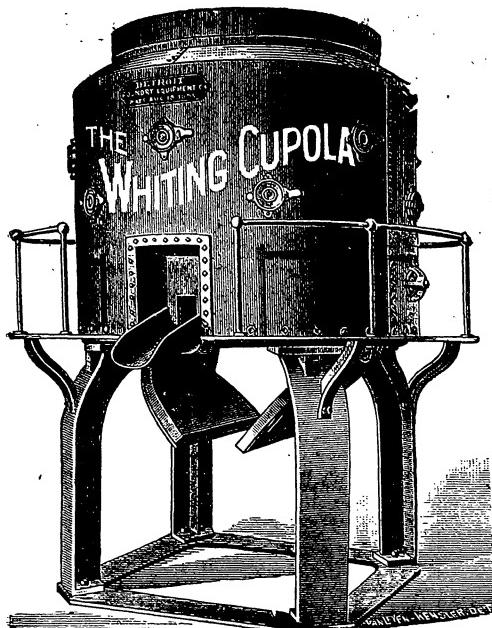
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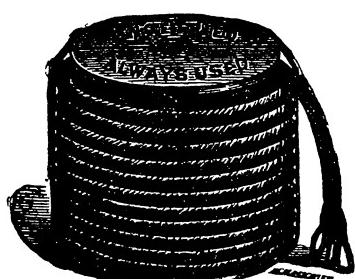
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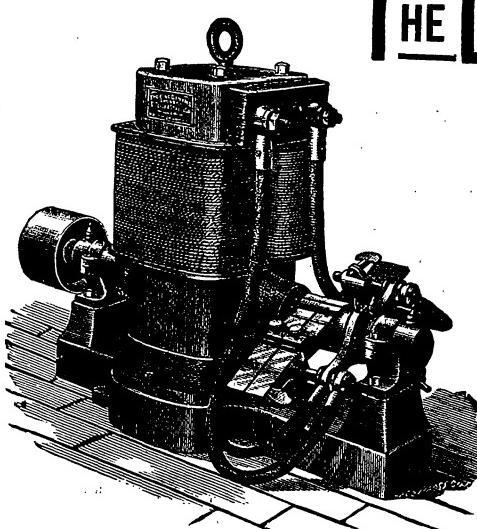
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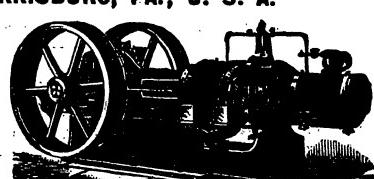
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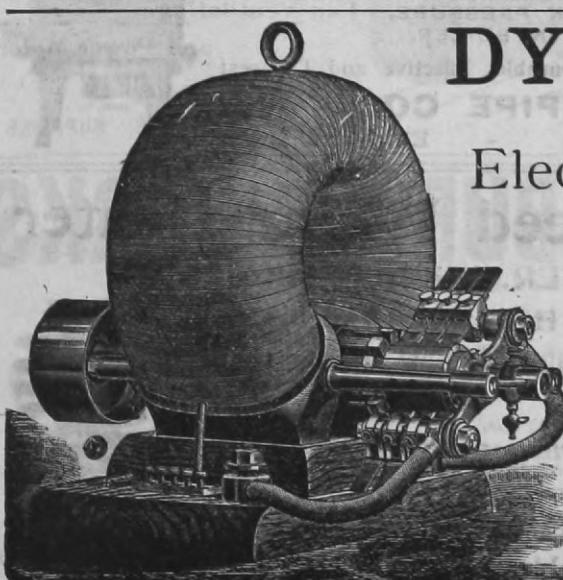
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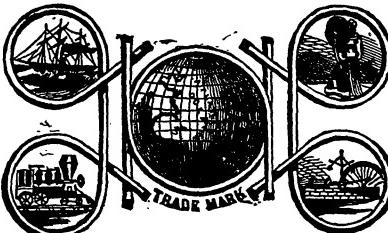
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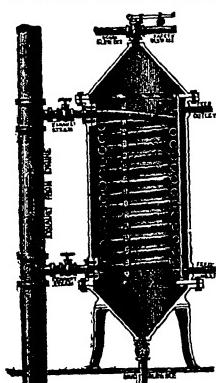
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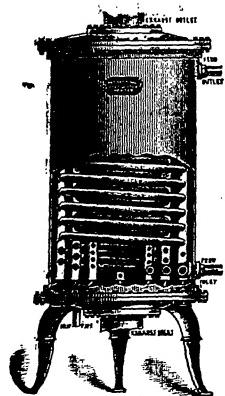
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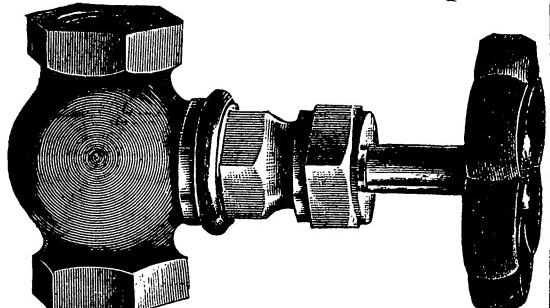
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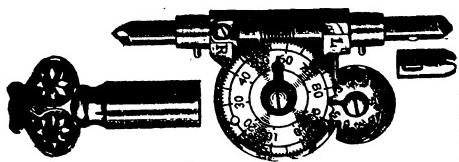
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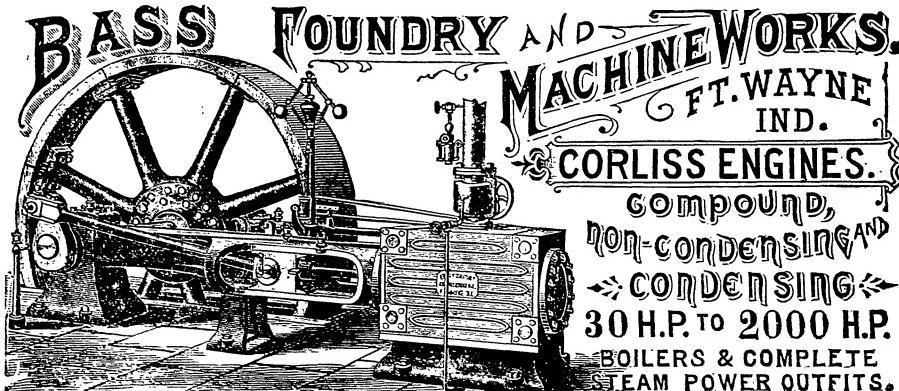
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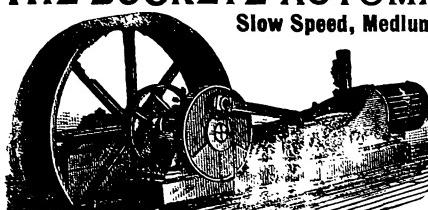
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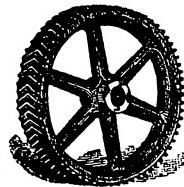
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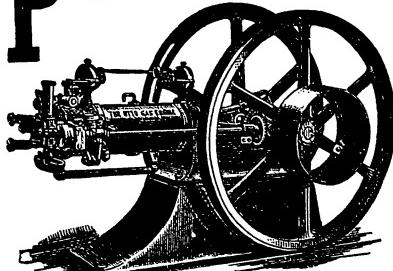
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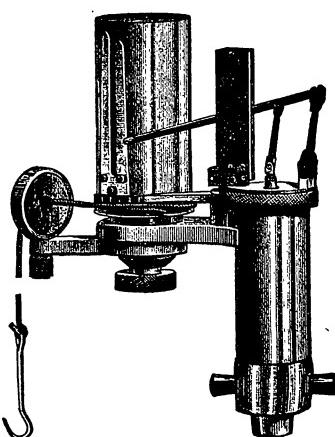


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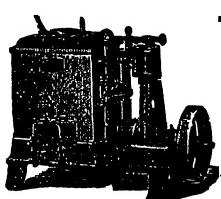
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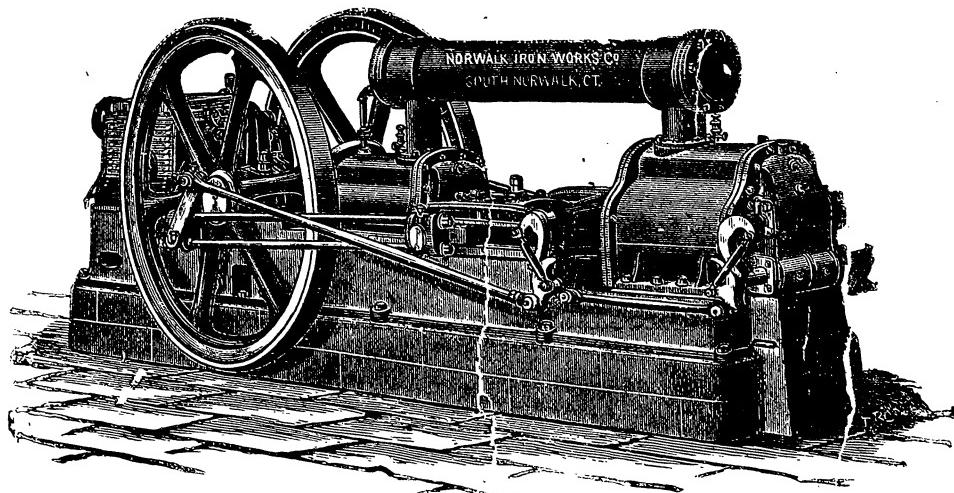
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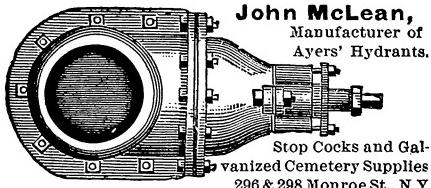
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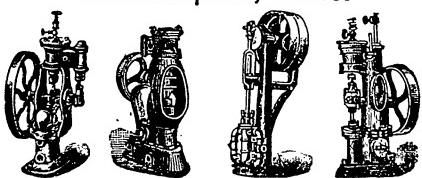
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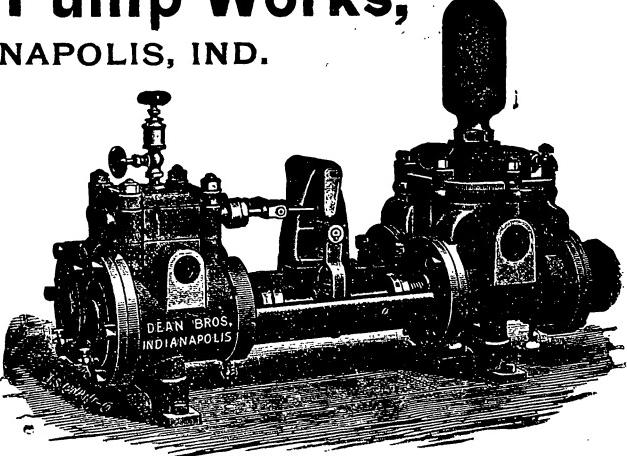
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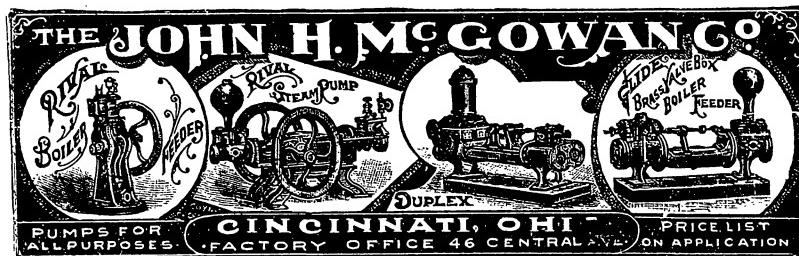
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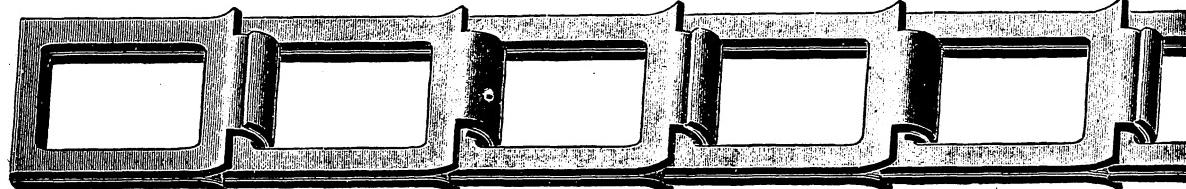
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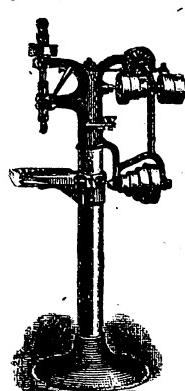
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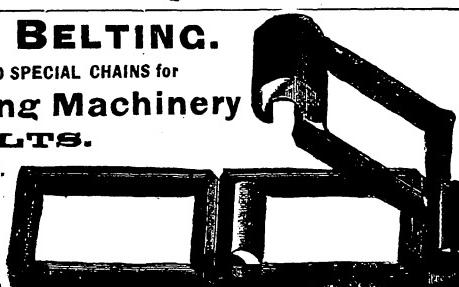
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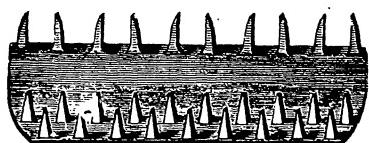
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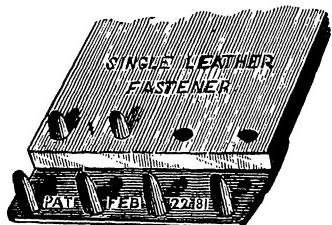
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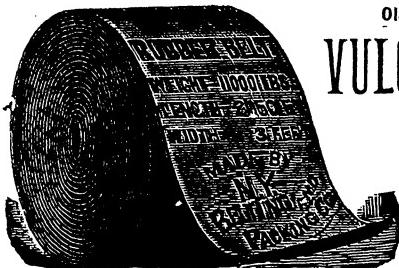
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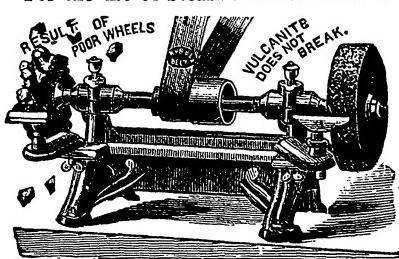
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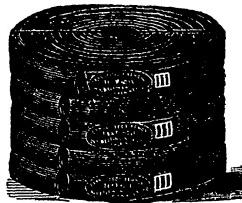
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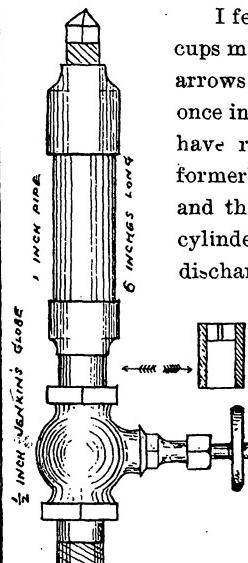
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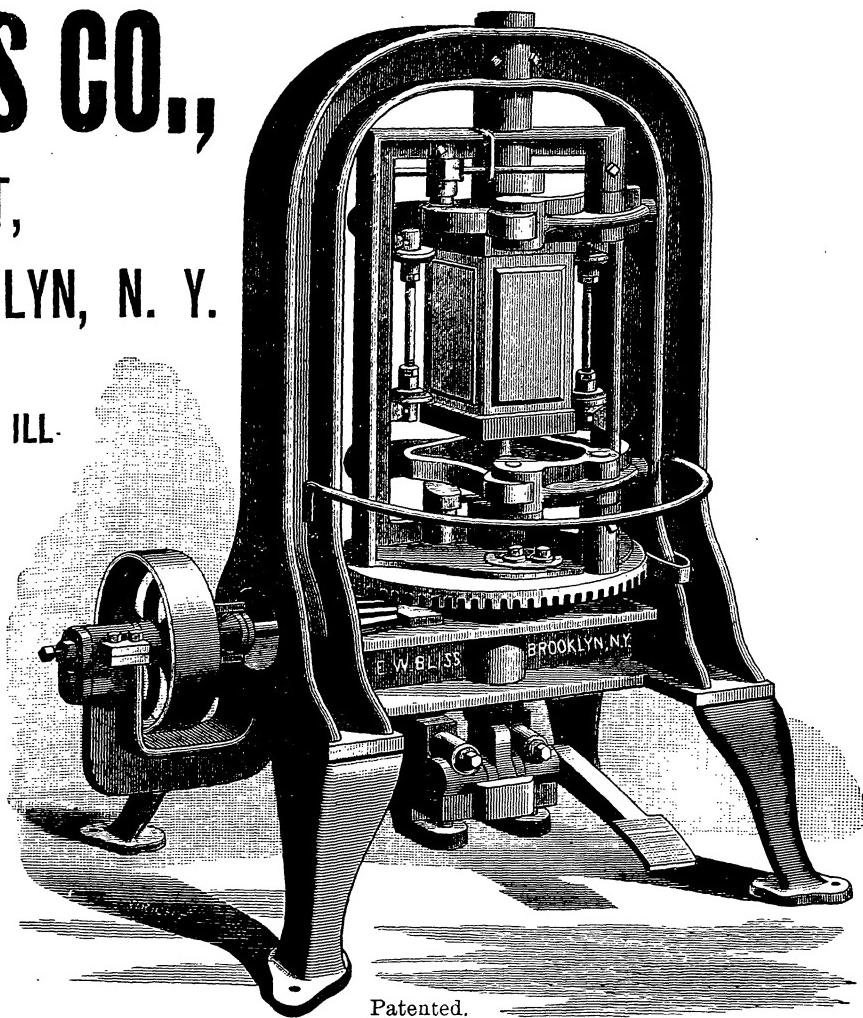
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Seams
of Square Cans.

Write for Particulars.

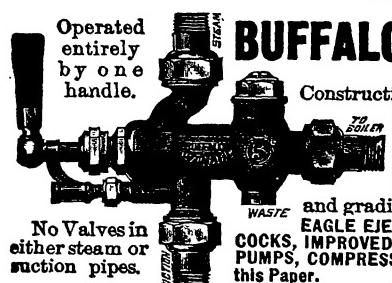
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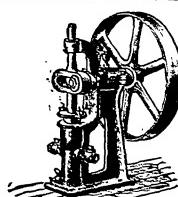
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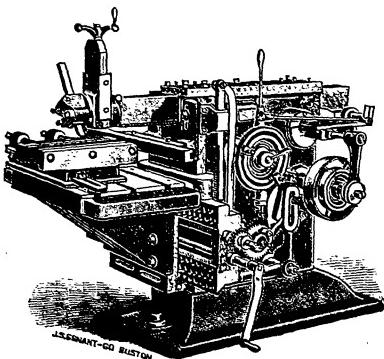
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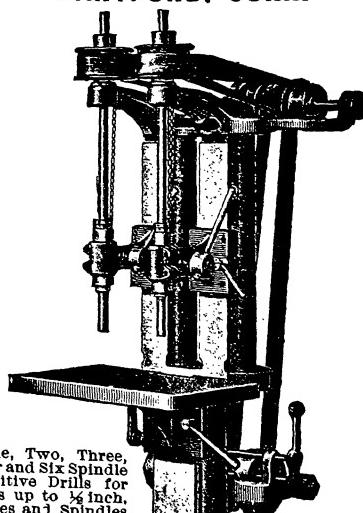
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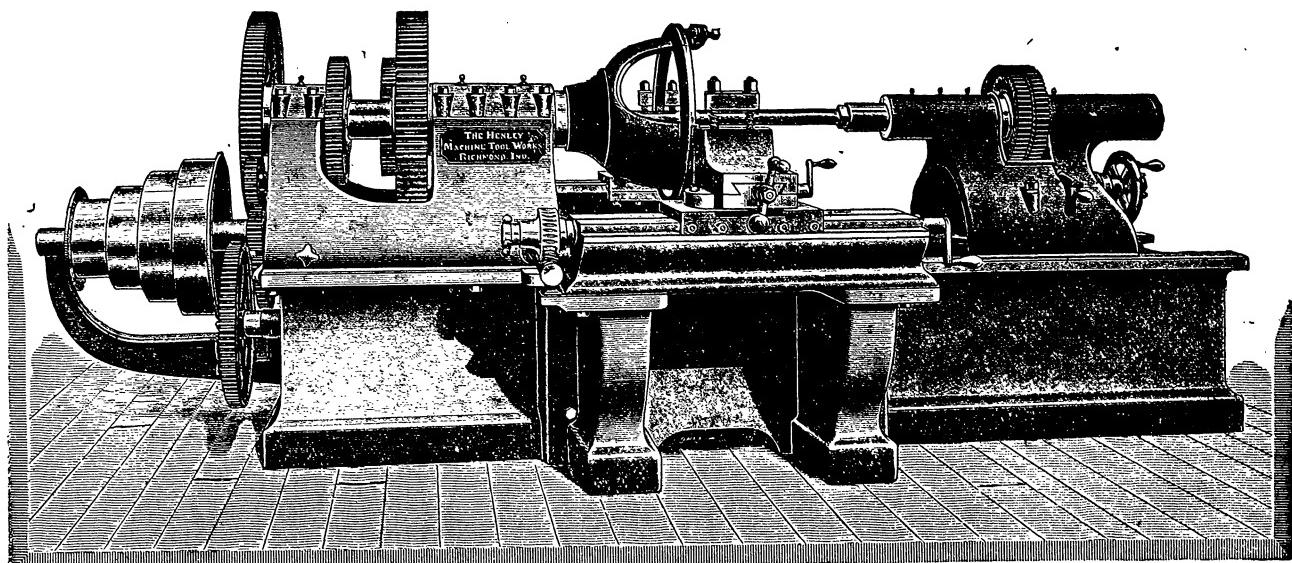


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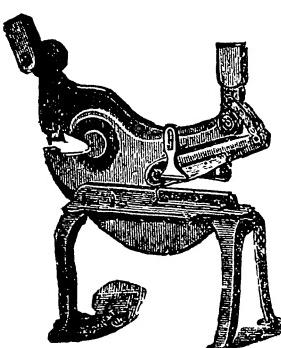
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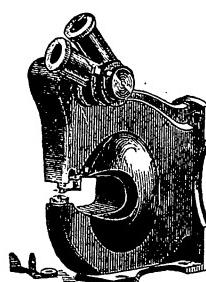
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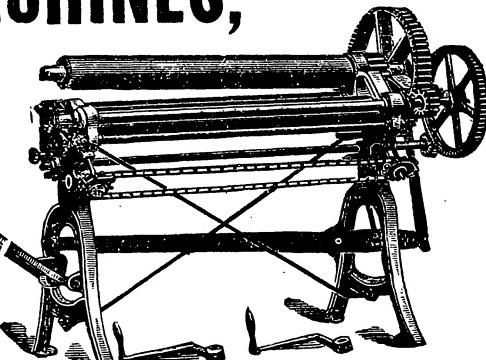
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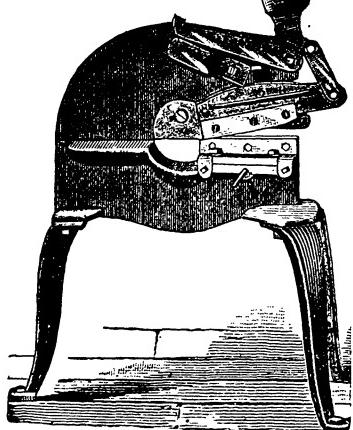


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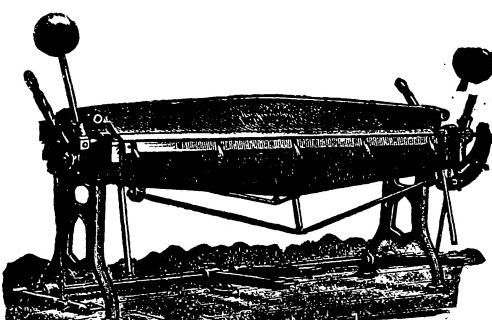


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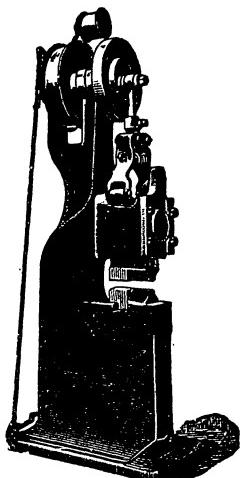


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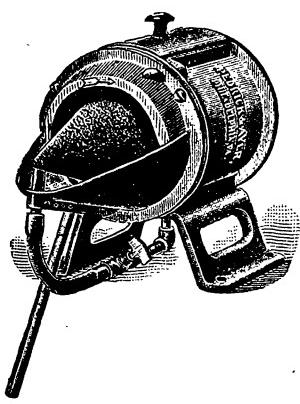
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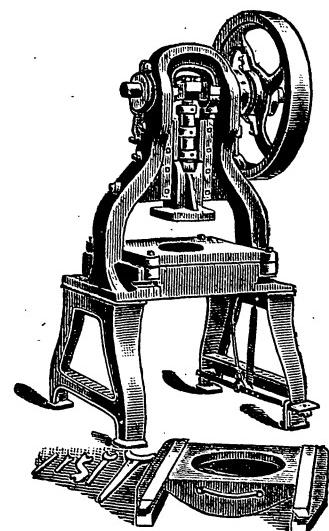
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FIG. 727.



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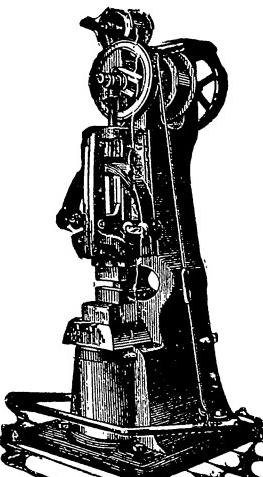
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Presses, Robie Jacks
Marble Machinery, Iron
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Riehle Bros. Testing
Machine Co.
9th St. abv. Master, Phil

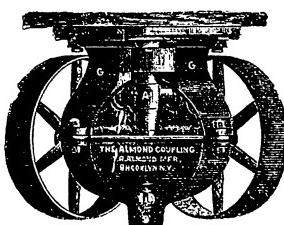
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Chicago Office, 65 South Canal Street.

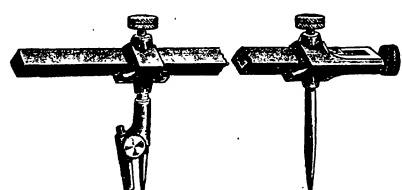


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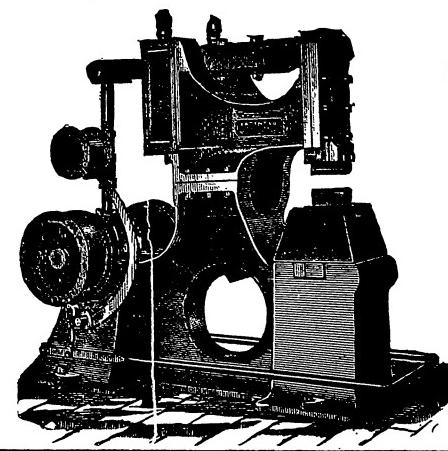


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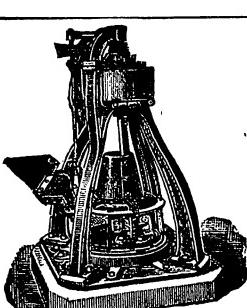
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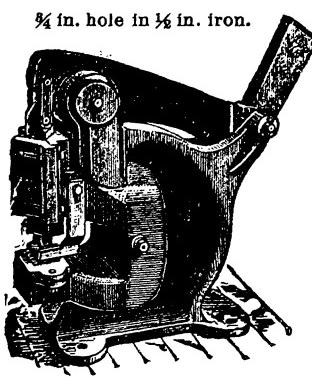
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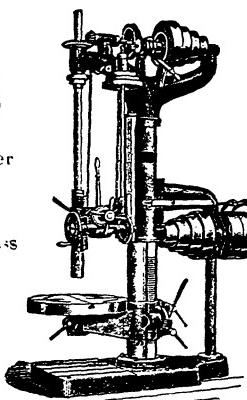
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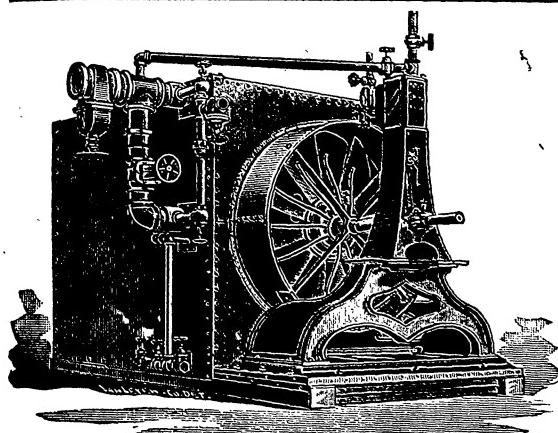
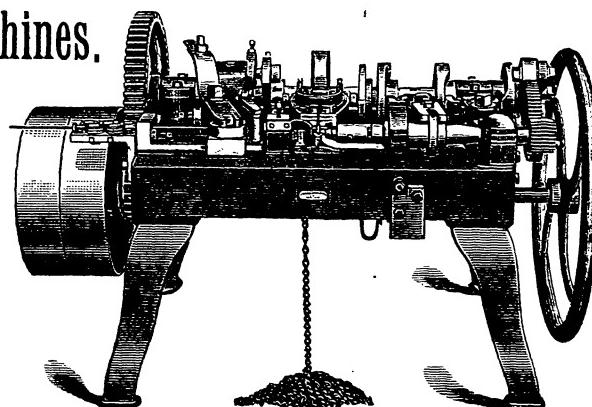
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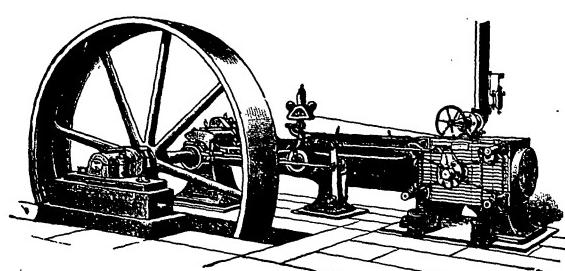
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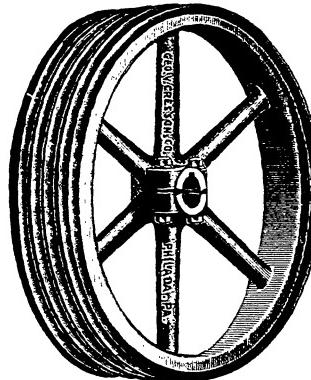
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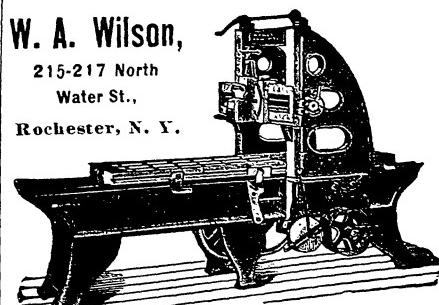


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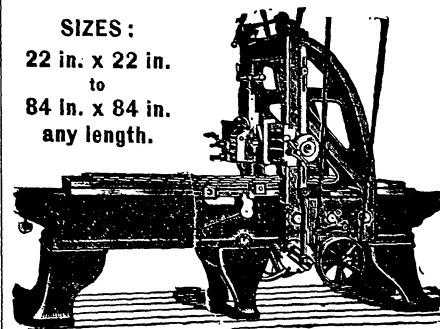
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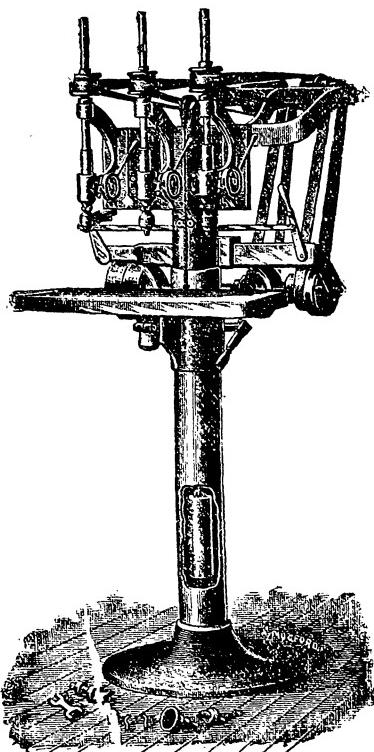
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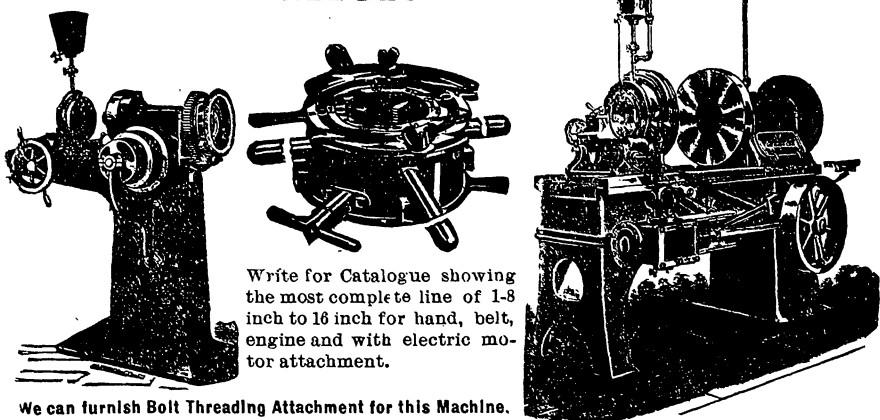
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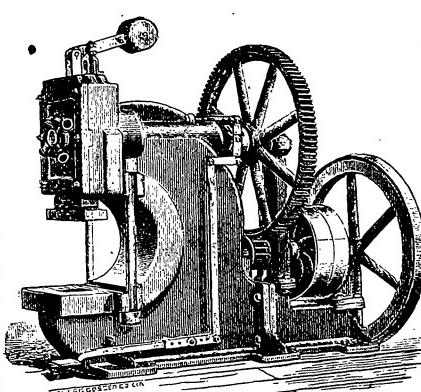
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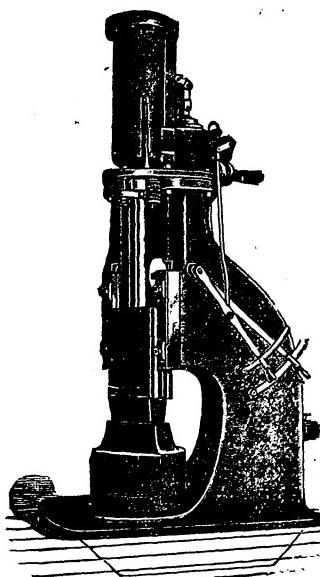
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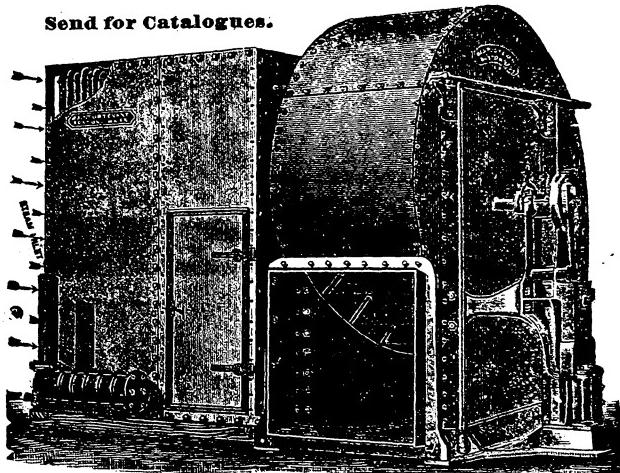
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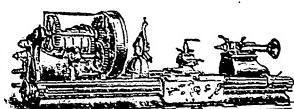
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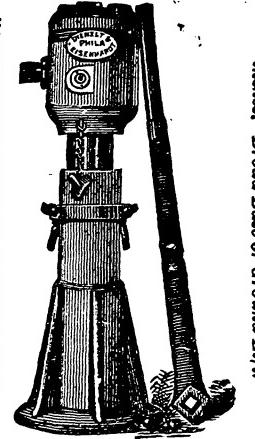
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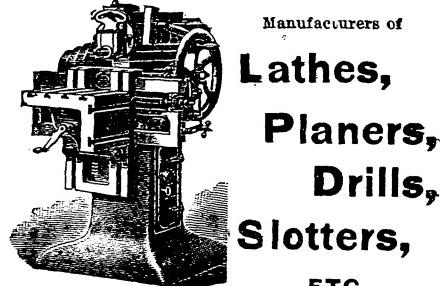
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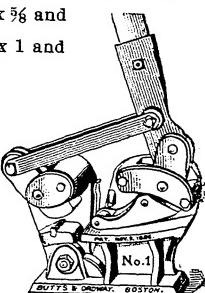
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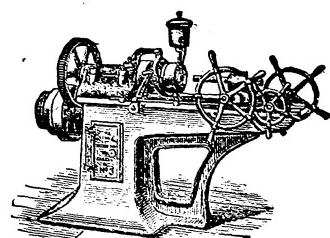


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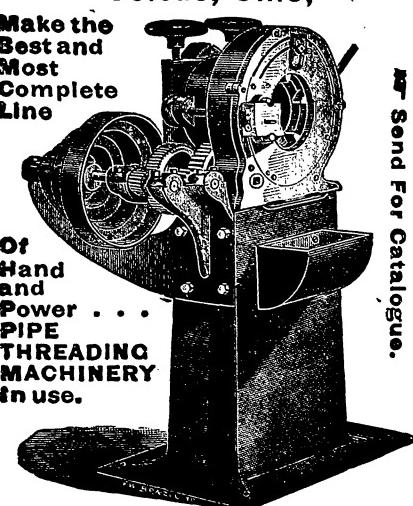
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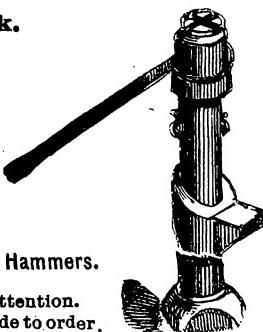
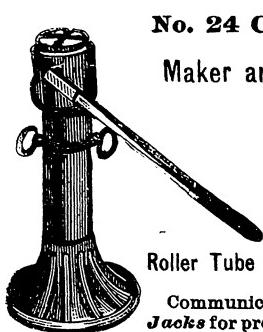
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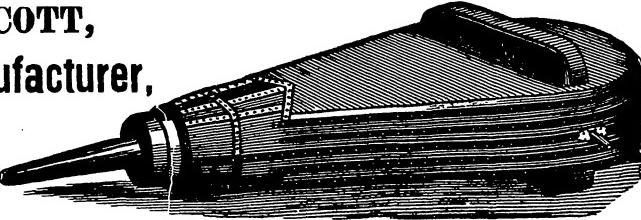
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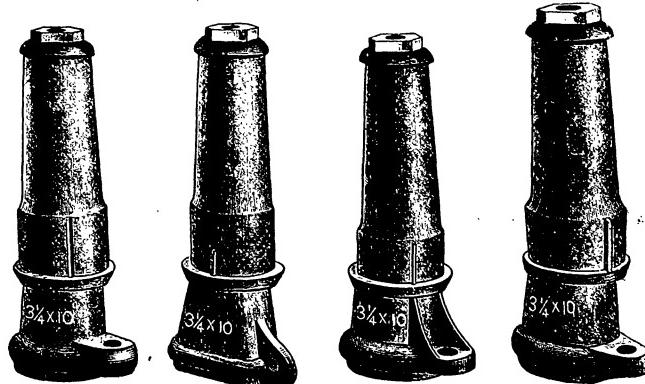
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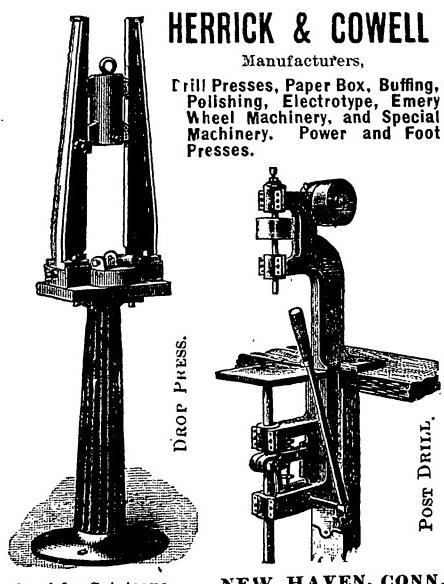
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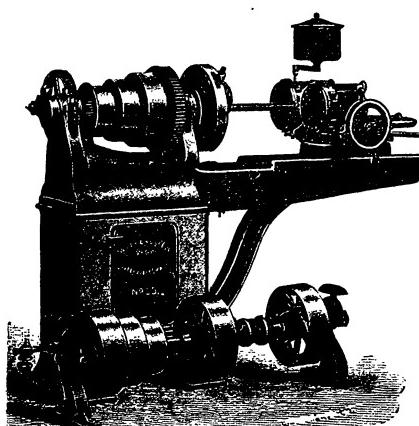
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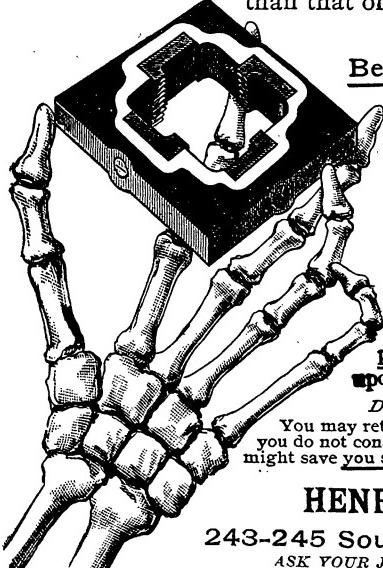
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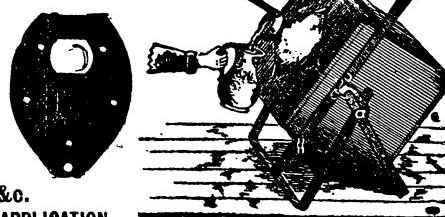
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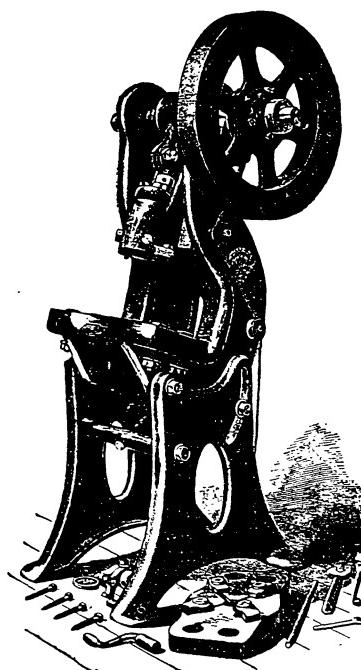
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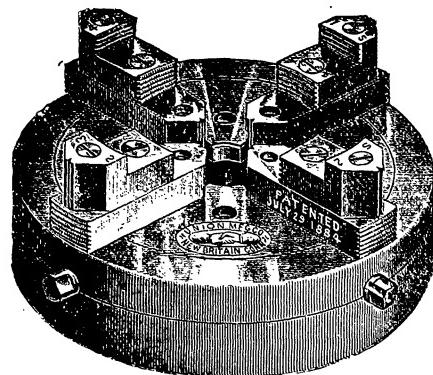
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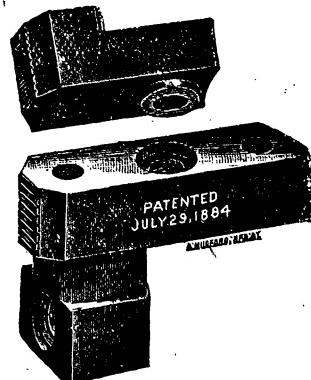


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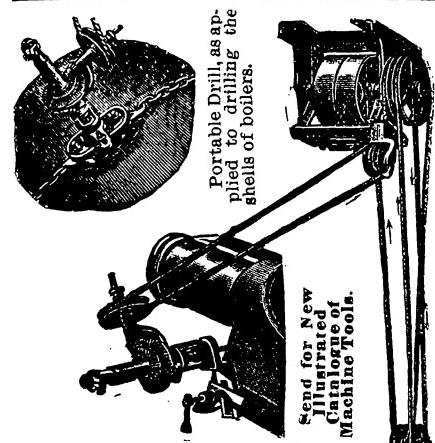
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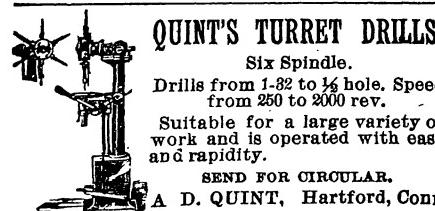
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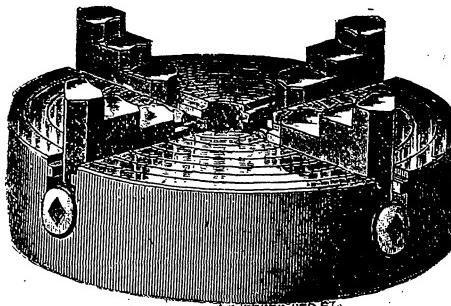
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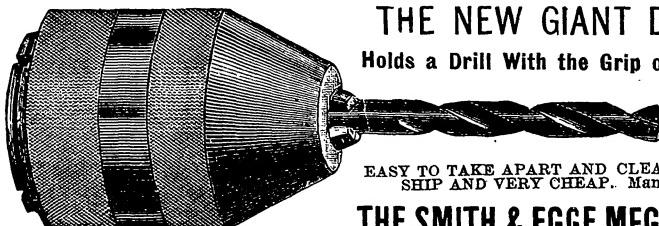


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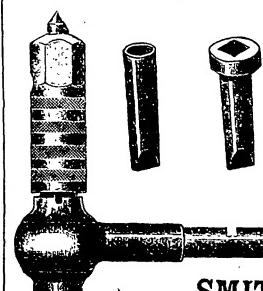
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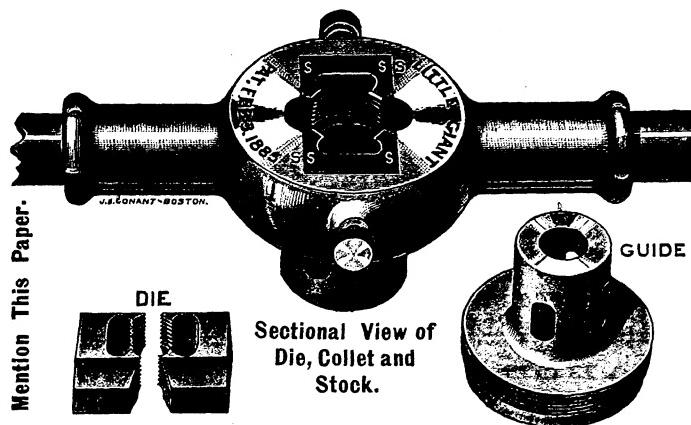
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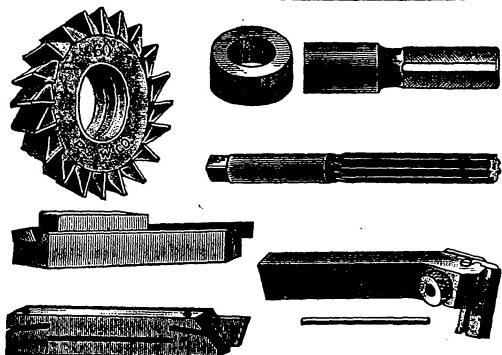
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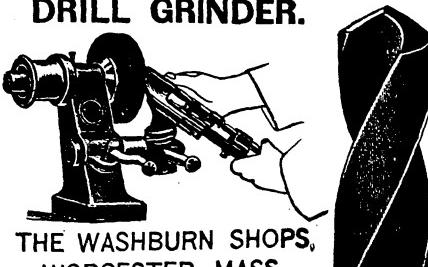
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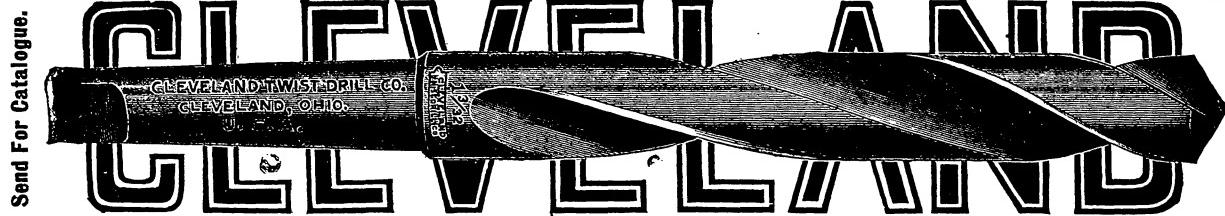
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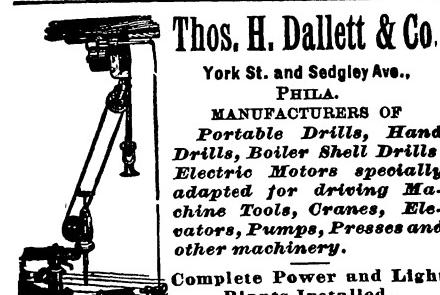
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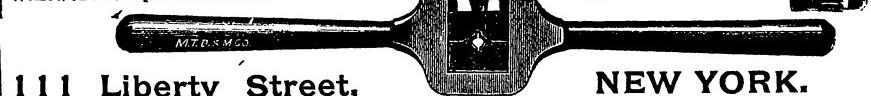
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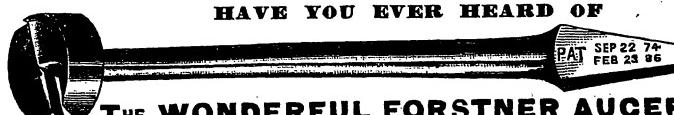
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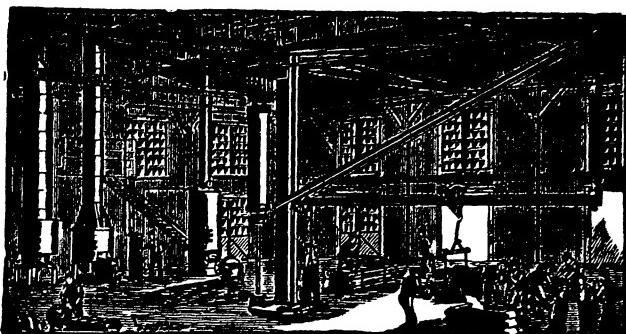
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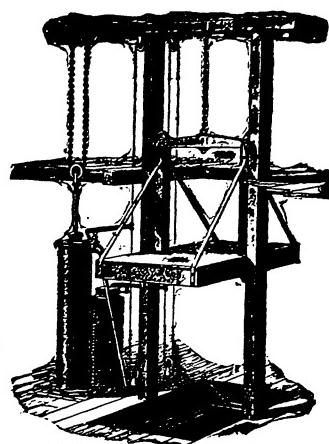
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TO THE EDITOR OF THE IRON TRADE REVIEW:
Enclosed find clipping from the Sharon, Pa., Telegraph, of June 24, giving an account of an accident at our works which fearfully demonstrates "The Unexpected in the Foundry." A sixty-ton heat was in progress of being run off and at the second lifting of the crane ladle, the hoisting chain parted and let the ladle drop five feet, striking the side of the cupola's ladle pit, and throwing the metal over the body of George Miser. Though almost enveloped by seething fluid iron, he retained his senses, and while attempting to crawl out of the metal was grasped by two men, who were horrified to find his skin come off at every touch. The unfortunate man lived three hours. It is the first serious accident I have had under my management of heavy work, for 24 years in the foundry. It took two and a half hours to resume melting, and after running down what iron remained in the cupola, the bottom was dropped. The chain which broke was best English make, and tested to lift 20 tons with safety. Its load at the time of the accident was about five tons. This suggests the query, *Why do chains generally break with the lighter loads?* This, I think, is the experience of others as well as myself. Yours truly, Thos. D. WEST. Sharpsville, Pa., June 26, 1893.

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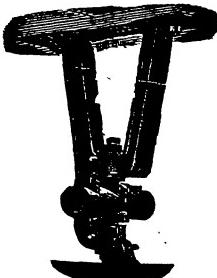
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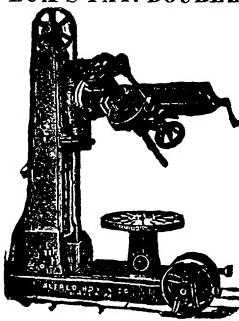
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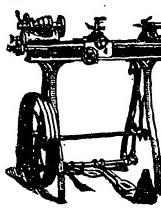
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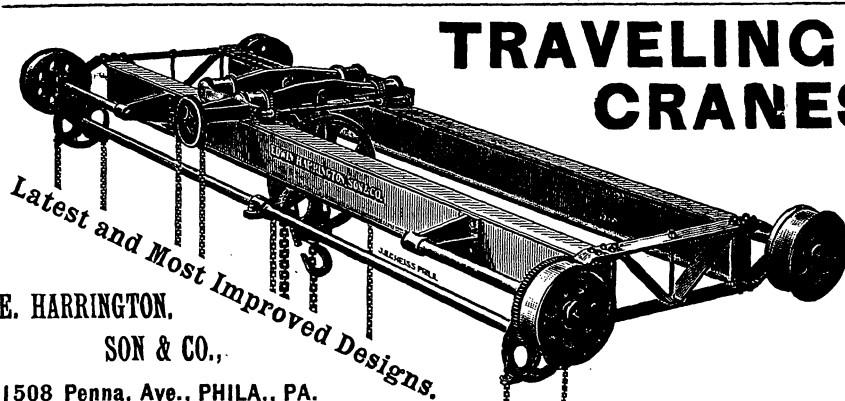
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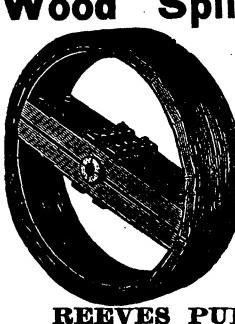
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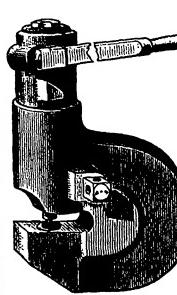


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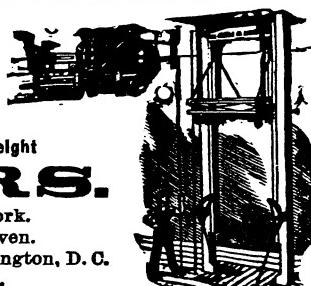
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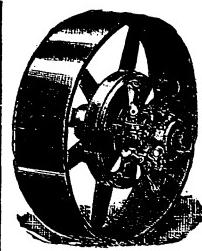
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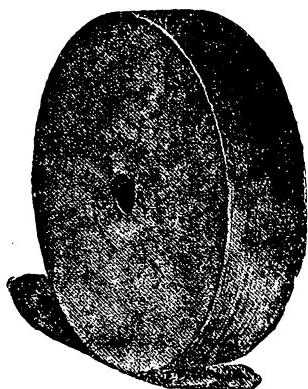
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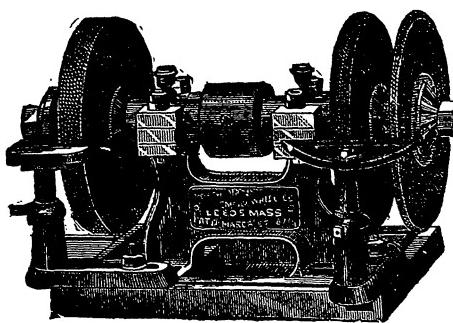
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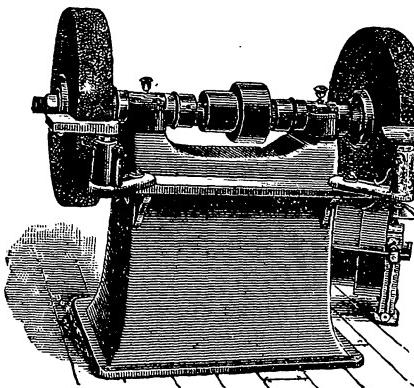
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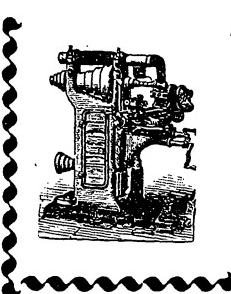
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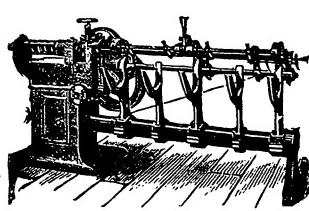
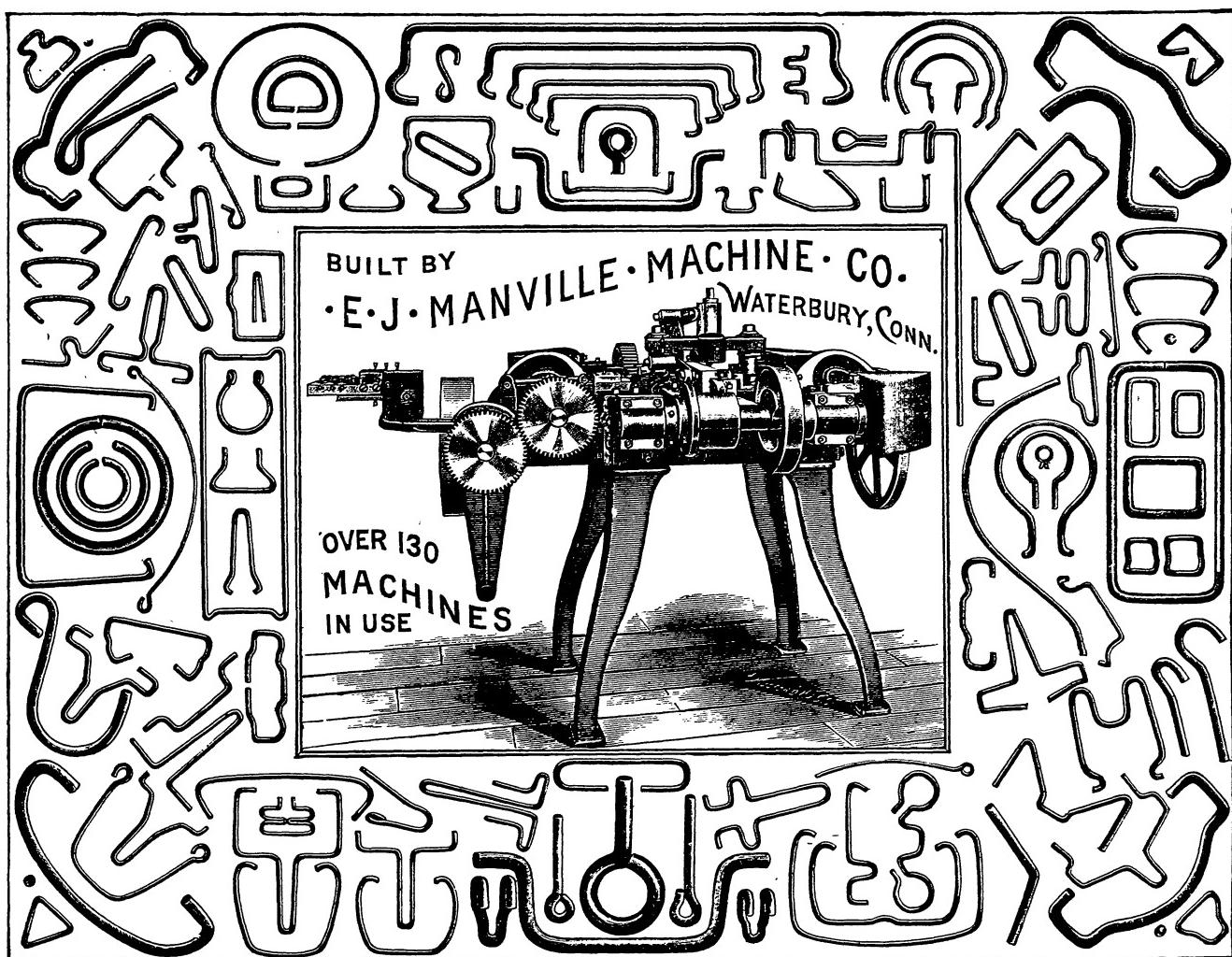
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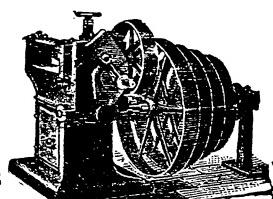


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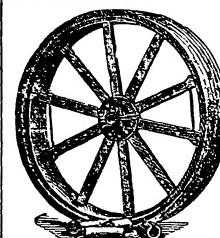
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15 in. x 4 ft. " " " "
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16 in. x 8 ft. " " " "
16 in. x 8 ft. Flather " " " "
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17 in. x 6 ft. Fitchburg " " " "
17 in. x 8 ft. " " " "
18 in. x 8 ft. " " " "
19 in. x 8 ft. " " " "
20 in. x 7 ft. Flather " " " "
20 in. x 10 ft. Fitchb'g " " " "
20 in. x 9½ ft. Pond " " " "
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28 in. x 26 in. x 10 ft. " " two beads on cross beam.
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1 " " 16 in. x 6 ft.
Above are new.

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| 52 in. x 35 ft., Rod Feed only; one end has Hor. Boring Machine. | |
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Plants fitted complete.

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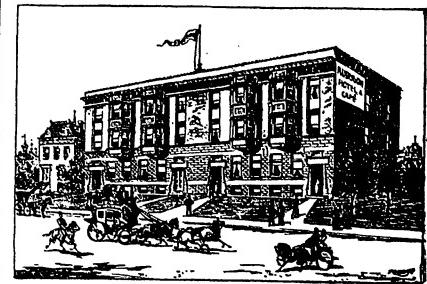
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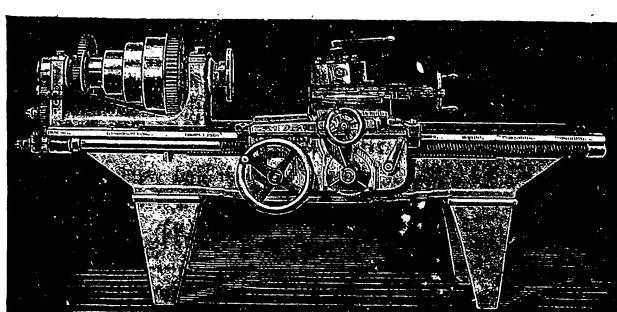
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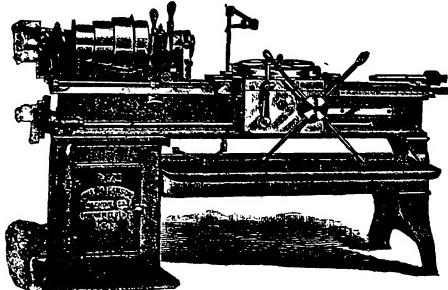
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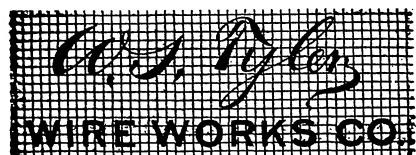
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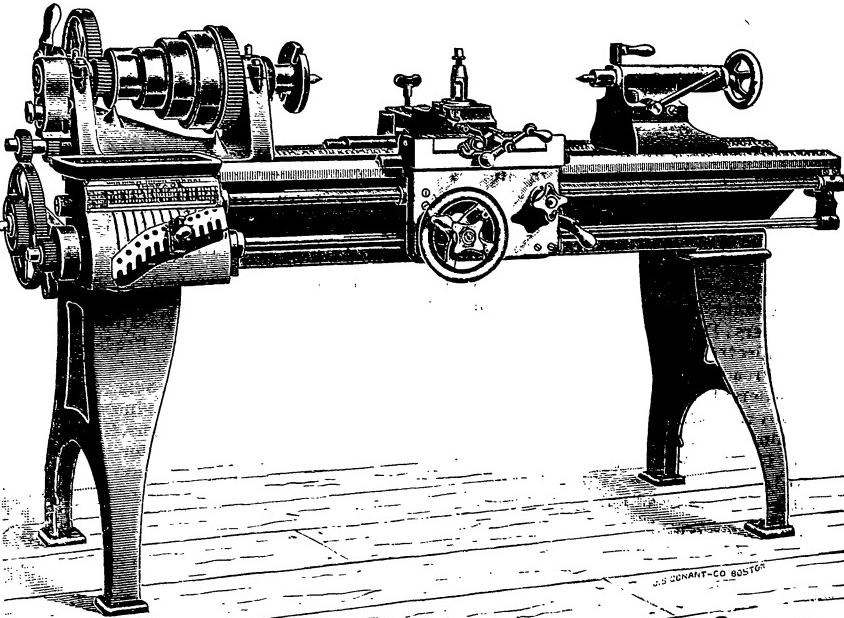
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These various threads for screws, and nuts for turning, cover everything called for in every-day work. Other changes of gear can be made, and each additional change will give 12 additional screws or cuts per inch. The simplicity of the lathe makes it most valuable feature and we fully guarantee it in every way. Send for descriptive circular, and mention *The Iron Age*.

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THE HORIZONTAL BORING MACHINE

IS A SPECIAL TOOL FOR THIS PURPOSE.

SEND FOR PARTICULARS TO

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JOHN S. JOHNSON, on his

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F. H. TUTTLE, also on a Stearns, took third place in same race.

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Well probably you are. We haven't got time to be. Our **KUT PRICES** on Lamp Stoves have made our competitors

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HANDLE THE

B.&B.

LAMP STOVES,
COOK STOVES,
OIL HEATERS,

and see what a cooling effect your greatly increased profits will produce. *Kut Prices* on *Lamp Stoves, Oil Cook Stoves* and *Oil Heaters*.

Ask for Catalogue and Kut Prices.

The Glazier Stove Co., Mfrs., CHELSEA, MICH.

W. W. MONTAGUE & CO., San Francisco, Cal., Agents for the Pacific Coast.



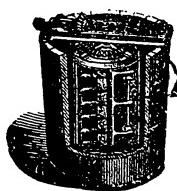
The standard by which the merits of a Freezer are gauged is, how near it comes to being as perfect as the

WHITE MOUNTAIN ICE CREAM FREEZER.

It always has been, and is still, the best. Try them.

—MANUFACTURED BY—

THE WHITE MOUNTAIN FREEZER CO., - - - Nashua, N. H.

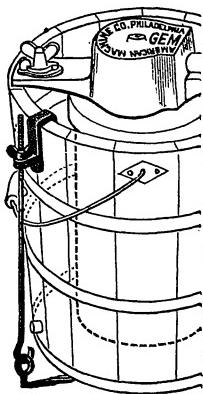


THE OLD RELIABLE STANDARD FREEZER

has the reputation of being the **BEST ICE CREAM FREEZER** ever introduced. **STRENGTH, DURABILITY, NEATNESS AND EFFICIENCY** are prominent points in the manufacture. Full Size Can, CEDAR TUB, Detachable Hinged Crossbar, Self-adjusting Vibratory Scraper, etc.

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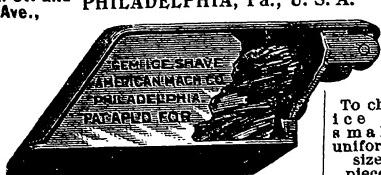


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GEM
FREEZER
CLAMPS,

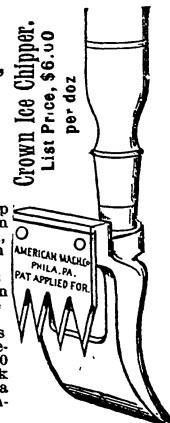
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For shaving ice from block in refrigerator for cooling water, wines, fruits, oysters, &c., and use at Soda Fountains, Restaurants, and Bar Rooms.

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To chip ice in small, uniform size pieces to use in all Ice Cream Freezers. Will reduce a 20 lb. block ice in a few minutes.

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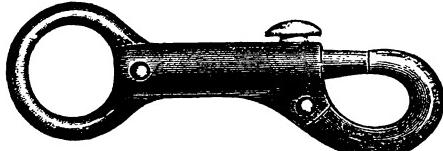
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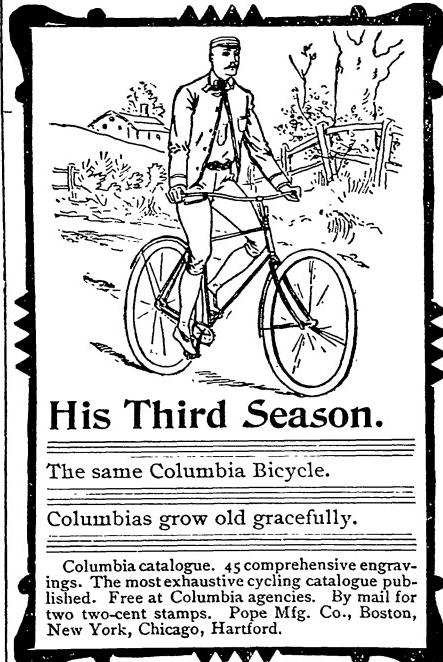
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Made in all sizes; Round, Loop and Open Eye. **We are headquarters** and the most extensive manufacturers in Saddlery, Coach and General Hardware Specialties. Our 80 page catalogue now in the printers' hands.

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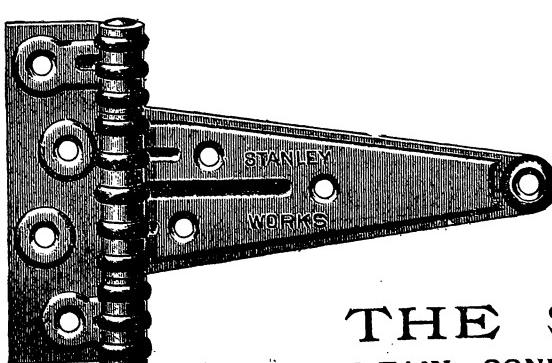


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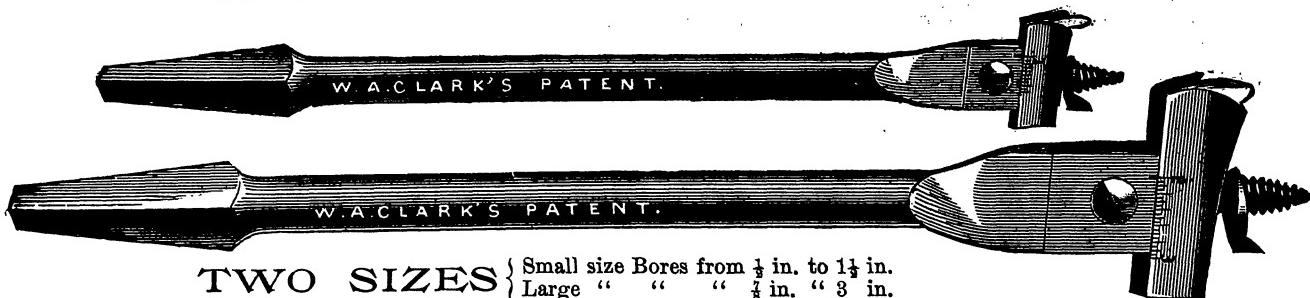
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TWO SIZES { Small size Bores from $\frac{1}{2}$ in. to $1\frac{1}{4}$ in.
Large " " " $\frac{3}{4}$ in. " 3 in.

SPECIAL CUTTERS: No. 5—For Large Bit, Bores from 3 in. to 4 in. No. 6—For Large Bit, Bores from 4 in. to 5 in.

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Quality guaranteed. For sale by all Hardware Dealers.

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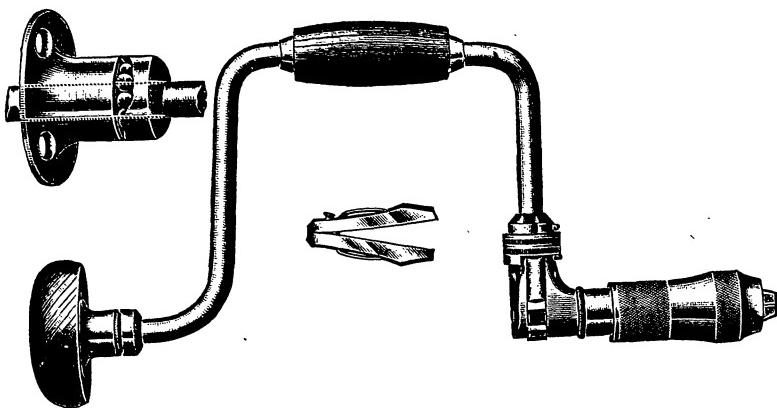


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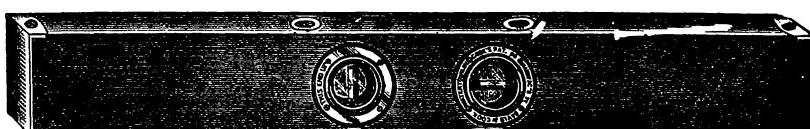


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Made in Wood and Iron. Every Level Fully Guaranteed.

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STRONGEST and QUICKEST SCREW DRIVER in the market. One Tempered Steel Bit furnished with each Driver FINELY POLISHED and HEAVILY NICKEL PLATED. Lignum Vitæ Head. LENGTH OVER ALL, 18 inches. Each one in a separate wooden box with slide cover.

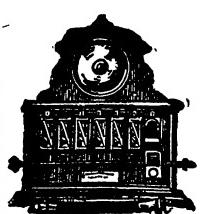
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Reading, Pa.

JOHN H. GRAHAM & CO.,

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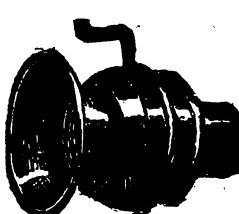
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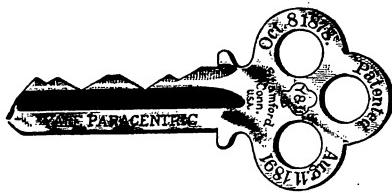
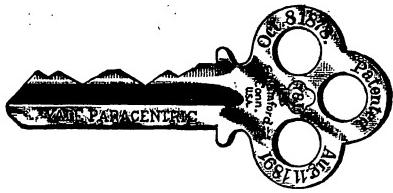
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Manufacturers of

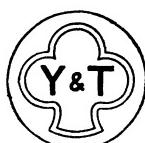
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Complete outfit of Speaking Tubes, Whistles Electric, Mechanical and Pneumatic Bells. A full line always in stock. Send for new catalogue. Factory, DeKalb ave. near Knickerbocker Brooklyn, N. Y.





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THE DEALER who sells what
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MAKES FRIENDS and MONEY, and
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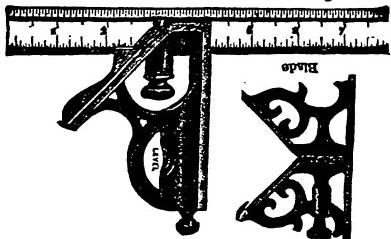
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Also a full line of

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Made of Wood.
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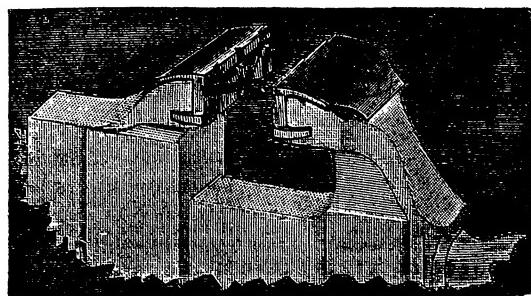
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SEND TO BOARDMAN FOR CATALOGUE & PRICES.
THEIR MAKE IS EQUAL EAST HADDAM & SON
IF NOT SUPERIOR TO ANY OTHER.
HAVE BEEN IN BUSINESS SINCE 1840.

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PATENT VISE JAW CASE**

Will Fit any Kind of Vise.

For protecting finished work. Will hold finished rods of any shape without injury.

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| 3½ inch, | per pair, 40 cents. |
| 4" | " " 60 " |
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PRENTISS VISE CO.

44 Barclay St., New York.

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Branch Warehouses: 85 and 87 John St., New York; 197 Lake Street, Chicago, Ill.

THE OLDEST AND MOST EXTENSIVE MANUFACTURERS OF

Pumps, Hydraulic Rams, Garden Engines,

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DOUGLAS' DIAPHRAGM PUMPS, "Loud Patent."

A LARGE CAPACITY AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 209.

Fig. 381.

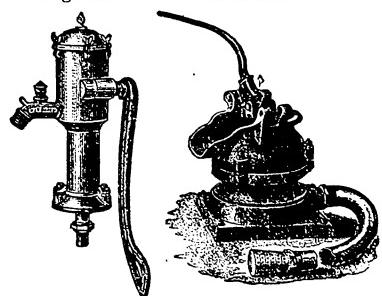
Fig. 145.

or wherever it is desired to raise a large quantity of water by
hand power.

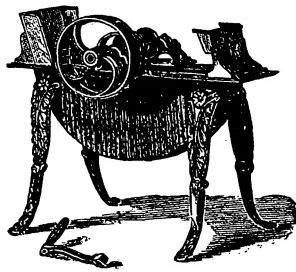
The pump has large valves (accessible by hand), and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

CAPACITY

from 3,000 to 4,500 gallons per hour.

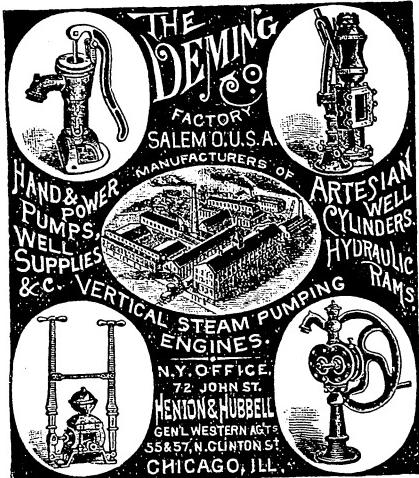


These pumps are simple, durable and low priced.
Made either as shown in cut for Hose or for IRON Pipe Suction underneath.

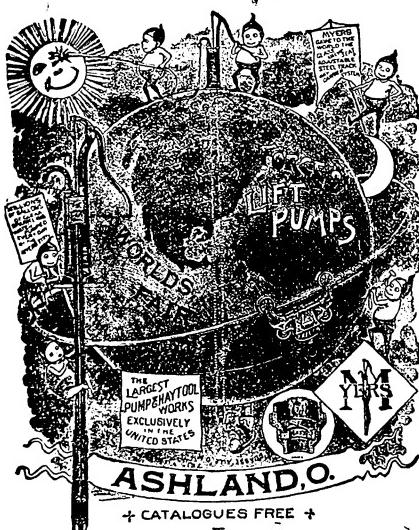


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Send for Circular and Price List.



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Ashland Pump and Hay Tool Works.

The New York Safety Dumb Waiter,
"The Manhattan Dumb Waiter,"
"The Improved Humphrey Hand Elevator,"
Made specially to be sold by Hardware Stores. Thousands in use. Catalogues on application.

THE STORM MANUFACTURING CO.
NEWARK, NEW JERSEY.
Formerly of Pouahkcepsie, New York.

THE H. M. MYERS COMPANY
ONE PIECE
SOLID STEEL SHOVELS
THE BLADE
Are made from
this one solid
Piece of Steel.
A Perfect
Plain Back Tool
With thick Centre.
WITHOUT WELD OR RIVET
CAREFULLY TEMPERED
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SICKELS, SWEET & LYON,

Wholesale Hardware.

Office, 35 Barclay St. Warehouse, 40 Park Place, New York.
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WINSLOW SKATES.

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Union Steel Screw Co.'s Screws.

Orders for Skates should be placed early. Shipments from factory or New York as preferred.

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Wholesale Hardware and Tinnery Stock.

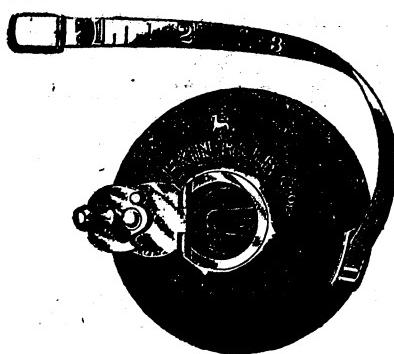
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AND OTHER TOOL SPECIALTIES.
The Combination Haft contains six Brad-Awls, one Chisel, Screw Driver, Diamond Point Awl, Marking Awl, Tack Puller and Reamer. Send for Circular and Prices.

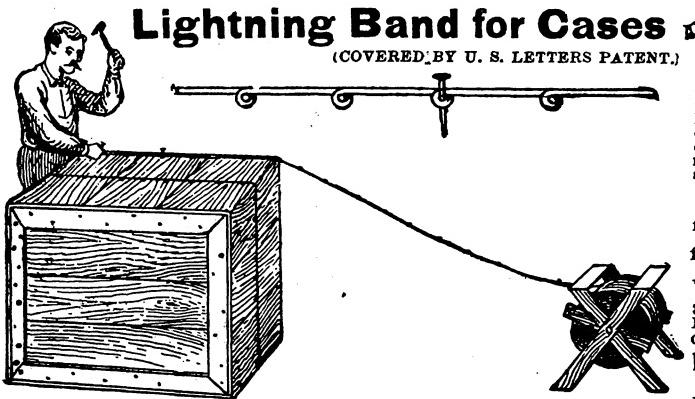
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(COVERED BY U. S. LETTERS PATENT.)

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Pliers for cutting wire, 50 cents extra.
No. 1 for cases under 300 or 400 pounds, and No. 2 for all heavier cases.

Buffalo Specialty Mfg. Co.,
Sole Manufacturers,
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Hand Screws

Hand Screw Spindles made of strictly second growth Hickory—never anything else.

Case & Glue Clamps

All threads cut with a saw to leave the grain solid—a patent process.

Cabinet Makers Benches

Nearly 700 of our Benches used by Grand Rapids Furniture makers alone.

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GRAND RAPIDS, MICH.

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To use it in any particular shape tighten the set screw.

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THE ART OF SELLING.

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In this book the author lets the reader into the secrets of the accomplished and successful salesman, illustrates his tact and finesse, and tells how he masters men: but beyond this, the work embraces much information which will be instructive and useful to all classes of business men. Besides suggestions to buyers, it contains chapters on "Changes in Business Conditions and Methods," "Salesmen's Compensation," "Retail Merchants and Salesmen," "Saleswomen," "How to Read Character," with a collection of clearly and tersely put important Legal Principles and Decisions Governing Sales. Sent, post-paid, upon receipt of price, by

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IRON INSTEAD OF WOOD. GALVANIZED IRON TUBING and CURB,

FOR CHAIN PUMPS,

(Kegler's Patent)

Are Giving Universal Satisfaction,

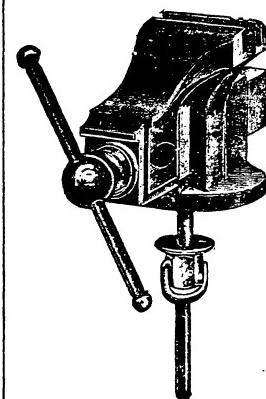
BECAUSE:

They do not rust and accumulate dirt—always clean. Extreme lightness is combined with strength and durability. No freezing. No waste of water by reason of enlarged reservoir at top of tubing. No annoying wheel at bottom. Easy to handle.

Tubing weighs less than $\frac{1}{2}$ lb. per ft., is connected by couplings and can be attached to any make of curb.

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HOLLANDS' OFFSET JAW VISE.

Specially adapted for drill press work where chucks cannot be used and equally good for special or regular bench work.

**Hollands Mfg. Co.,
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Manufacturers all
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NEW ADJUSTABLE BENCH LEVEL.

WITH GROUND AND GRADUATED VIAL.

4-6 and 8 inch.



Three Sizes.

MANUFACTURED BY

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MANUFACTURERS OF

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Also Cotton and Bale

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Patented Feb. 18, 1877, a new combination of Hooks.
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COLUMBIA STEELWIND MILL

New in Principle.
Beautiful in Appearance.

Powerful in Operation.
Contains covered Internal Gear.
Unexcelled in the line of Pumping Wind
Mills. We solicit the closest investigation.
Also Columbia Steel Derricks,
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SAWS

Three Essentials

IN THE MODERN
CROSS-CUT SAW.

- 1.—Teeth of uniform thickness.
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- 3.—Three Gauges heavier on ends than in center of back.

For 10 YEARS the Simonds Crescent-ground Cross-cut Saw (the only Saw on the market possessing these ESSENTIALS) has stood out prominently in contrast with all other makes of cross-cut saws. It has been the CRESCENT-GROUND against the FIELD--MODERN IDEAS against ANCIENT METHODS.

TO-DAY the Crescent-ground Saw is in use in every important lumber camp in the United States. Manufacturers have endeavored to imitate it, but the Machinery producing the Saw, the Process by which it is produced, and THE SAW, are patented. All imitations are but involuntary acknowledgments of the SUPERIORITY of

THE CRESCENT-GROUND CROSS-CUT SAW.

(PATENTED DEC. 26, 1882.)

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CHICAGO, ILL.

SIMONDS SAW CO.,

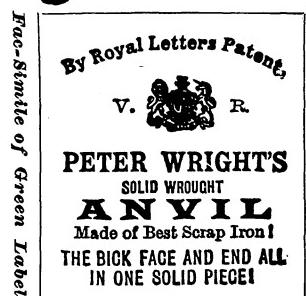
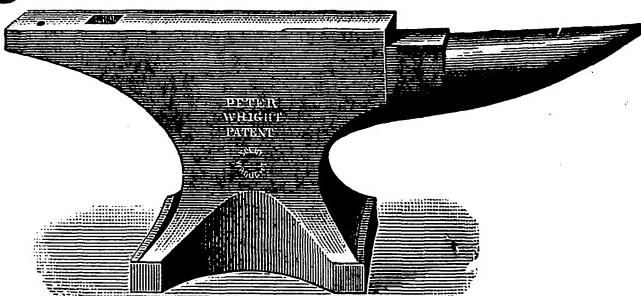
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SOLID
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Fac-Simile of Trade-Mark.



You are cautioned in buying to see that each anvil is stamped with the full trade-mark on one side and has the green label affixed to the other.

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PETER WRIGHT & SONS, DUDLEY, ENGLAND.

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BEST FOR USE!

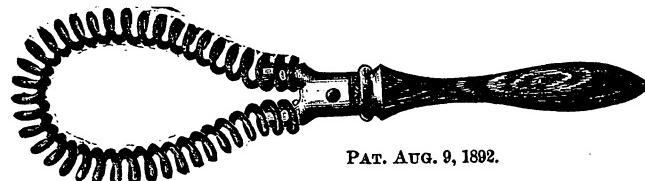
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OF
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MAN'S

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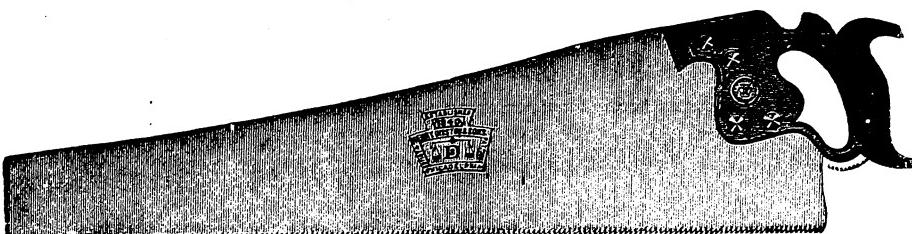
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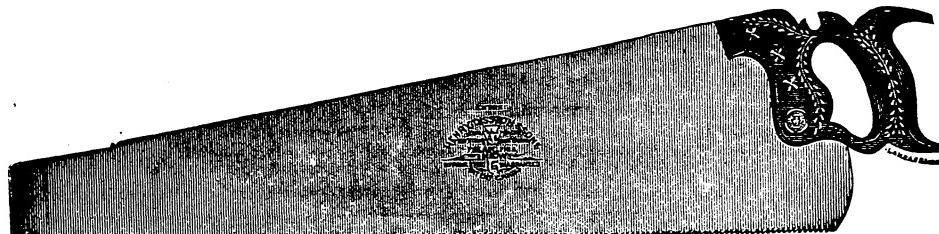
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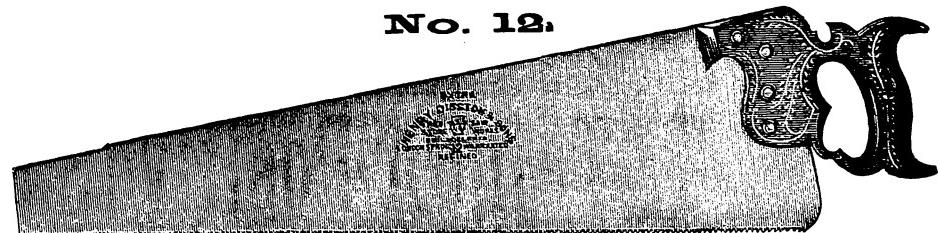
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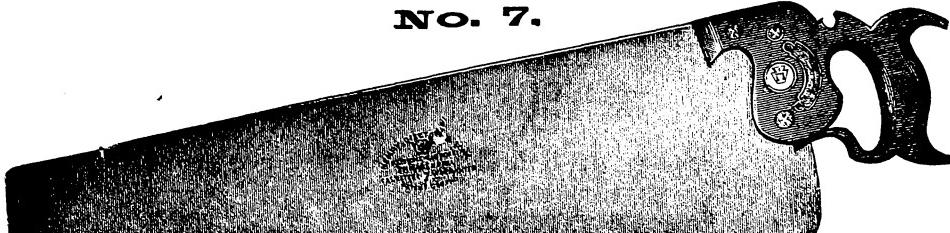
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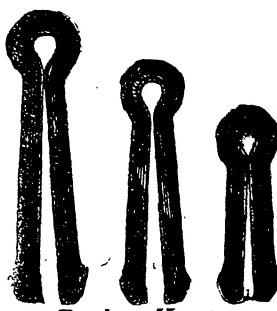
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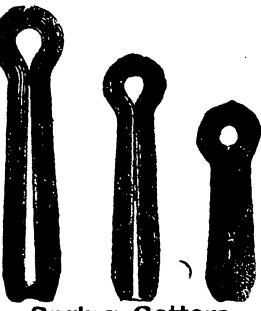
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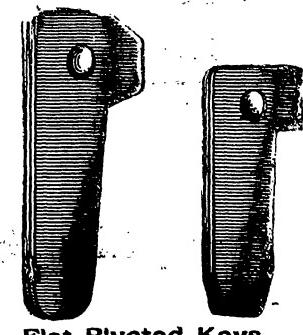
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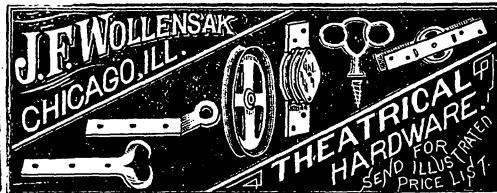
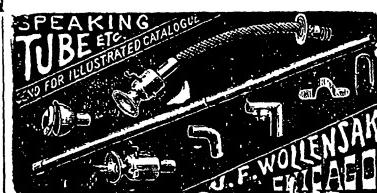
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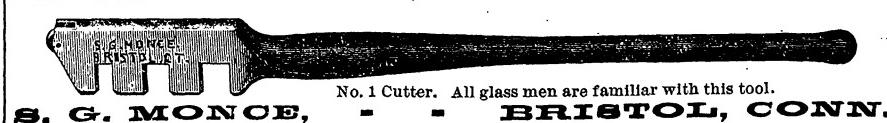
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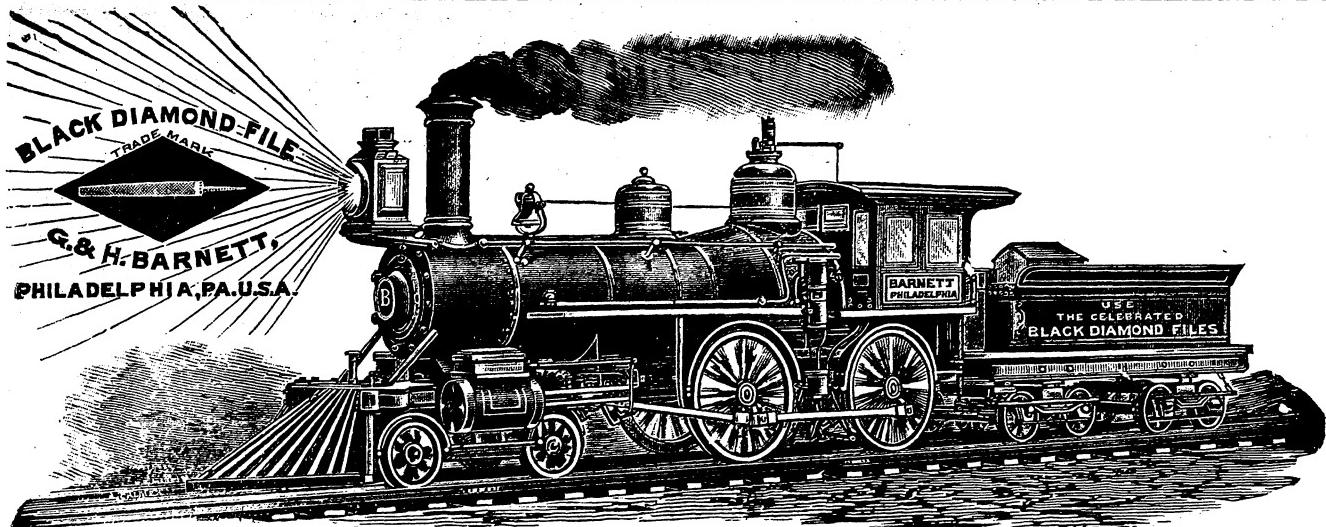


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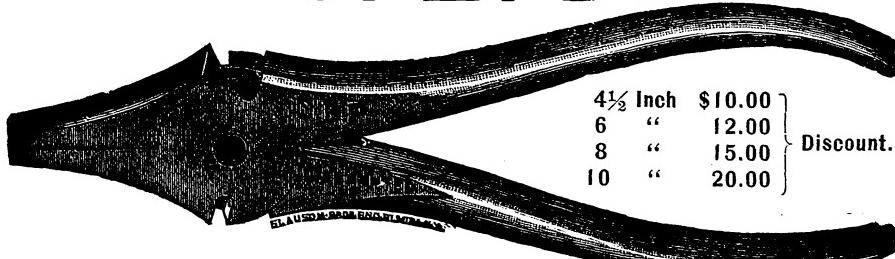
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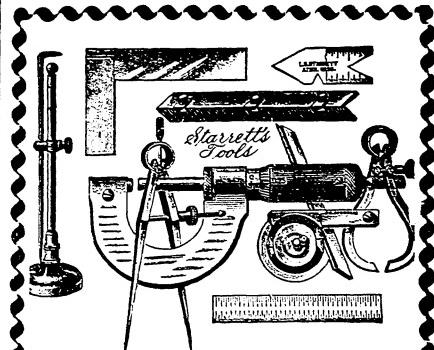
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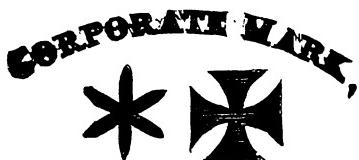
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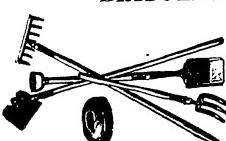
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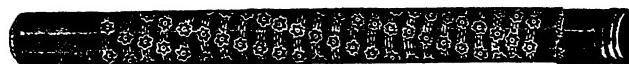


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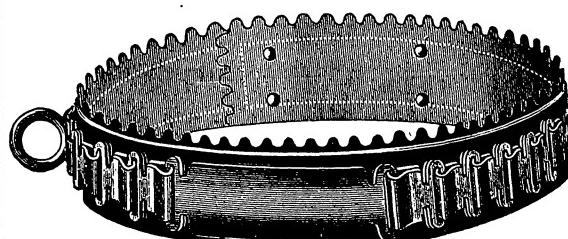
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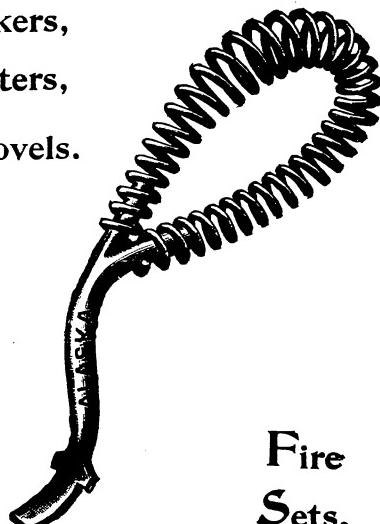
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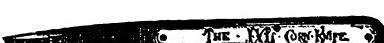
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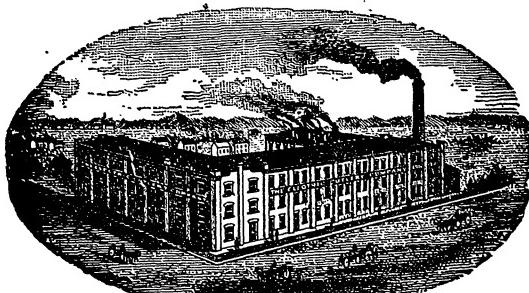
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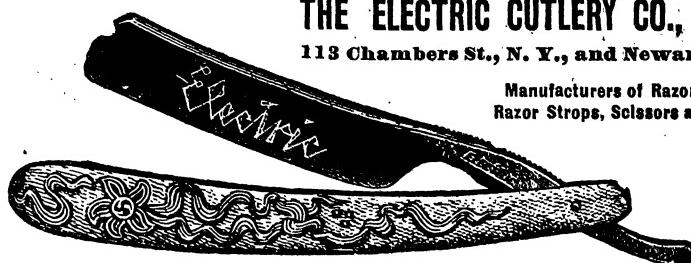
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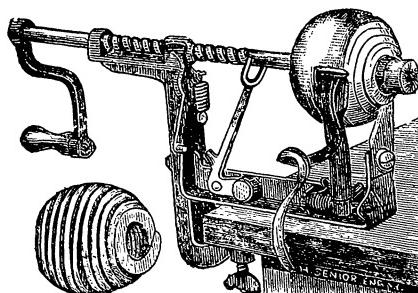
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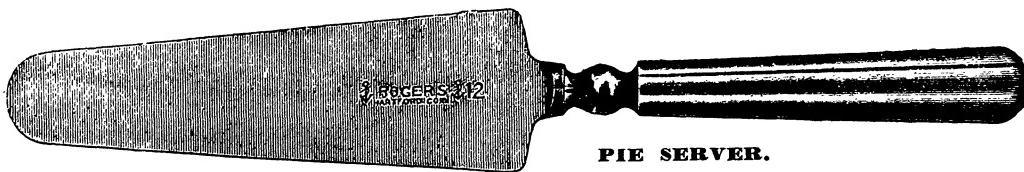


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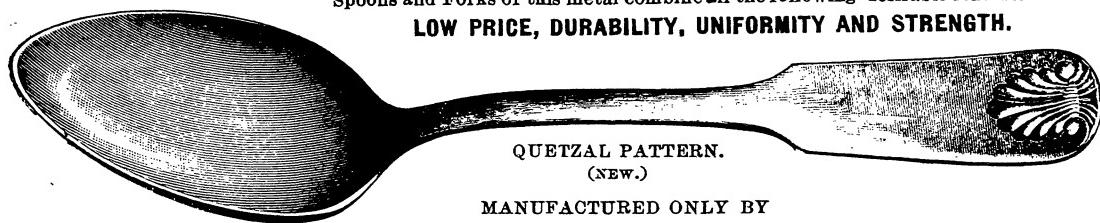
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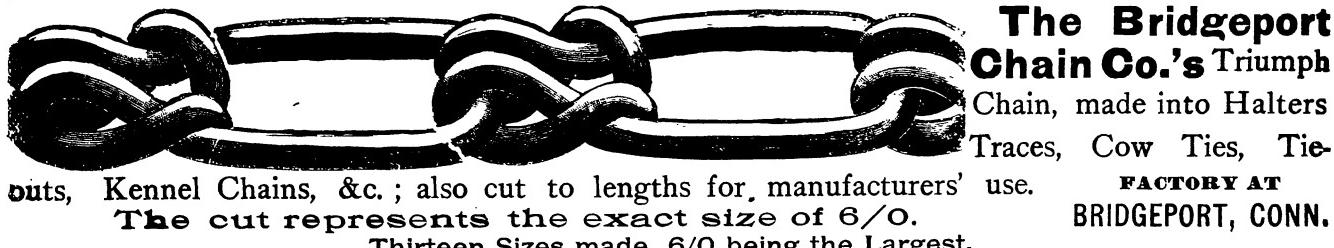
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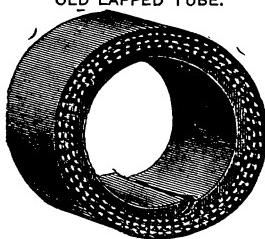
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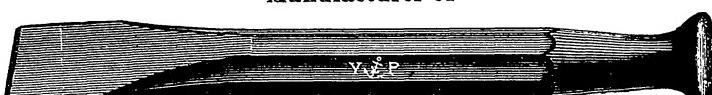
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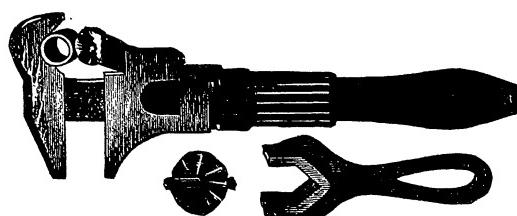
Railroad,**Miners'**

AND

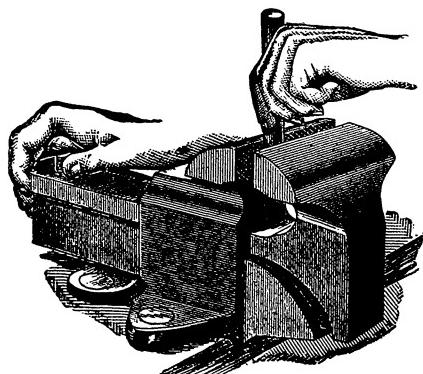
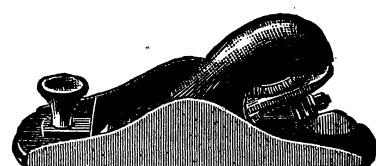
B. S. Tools.

Philadelphia Pa., U. S. A.

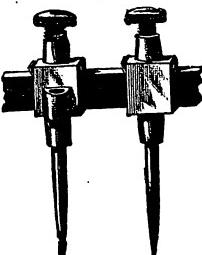
HIGH QUALITY TOOLS



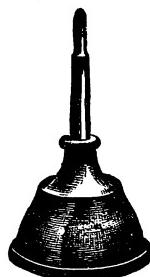
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Stephens' Patent Vises, Quick Adjust-
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Chaplin's Patent Iron Planes,
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Simplicity of Construction.

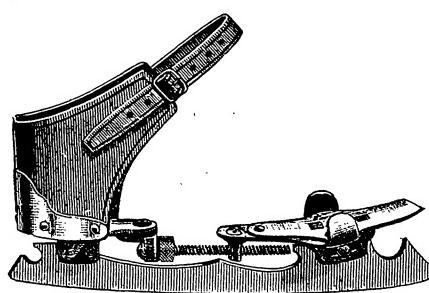
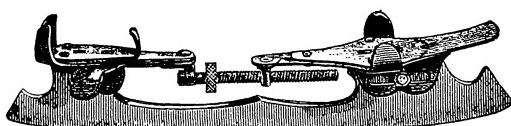
Boardman's Pat. Wrenches, Excelsior Expansion Bits, Whitney Drills, Baxter's Wrenches,
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Malleable Oilers and Lamps, Pencil Attachments.

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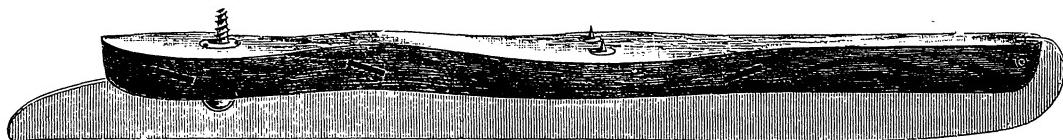
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—MANUFACTURED BY—

THE UNION HARDWARE CO.,
Torrington, Conn.



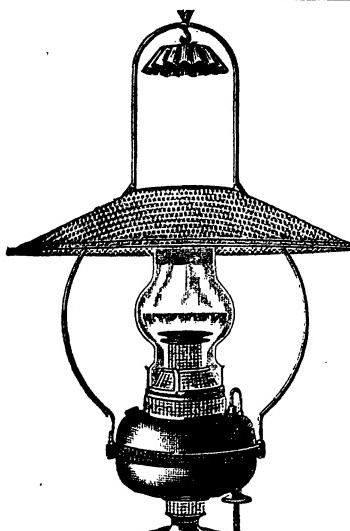
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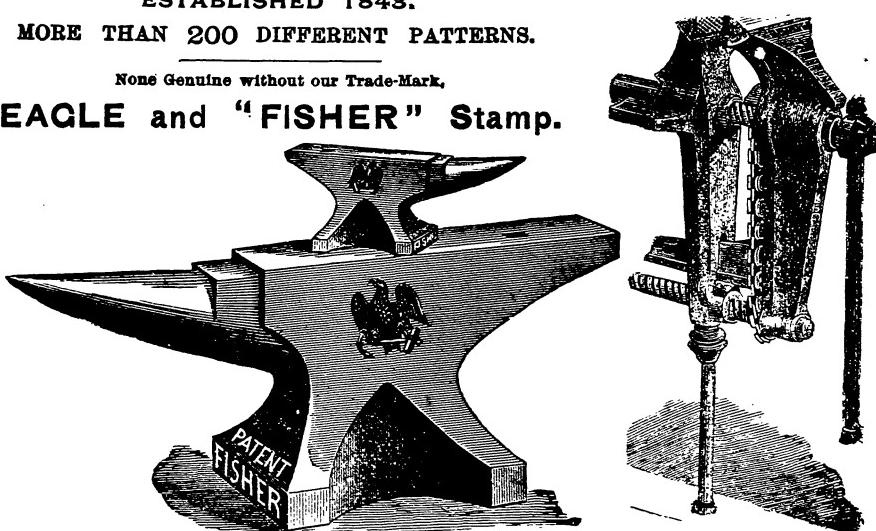
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Face in one piece of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true, of hardest temper, and never to come off or "settle." Horn of tough untempered steel, never to break or bend. Only Anvil made in United States fully warranted as above.

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Including Double and Single Bit Axes, Broad Axes, Hand Axes, Planing Mill Knives, Moulding Knives, Machine Knives of all kinds, Carpenter Adze, Mining Picks and Bark Spuds.

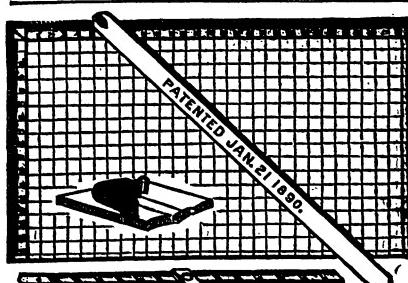
We make THE SAGER SPECIAL CHEMICAL PROCESS AXE, only known by us, while others are imitating this axe. None genuine without our label: "SAGER'S SPECIAL CHEMICAL PROCESS AXE." Write for Prices.



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■ Cuts any Fraction of an inch by Eighths.

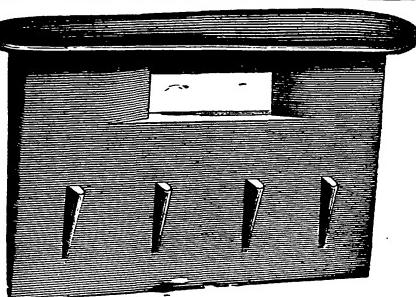
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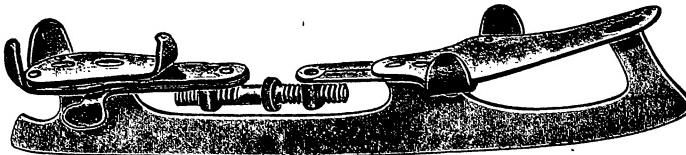
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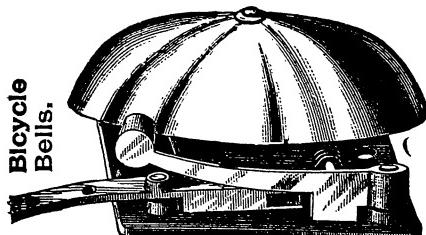
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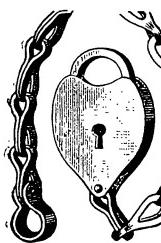


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Manufacturers of

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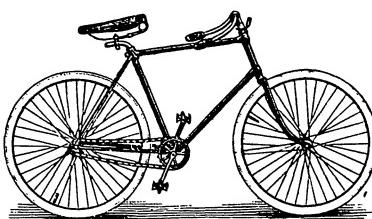
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And Premier Double Action, Rebounding Lock,
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All the above 32 Caliber take the H. & R. LONG or
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HIGHEST GRADE.

PNEUMATIC, CUSHION AND SOLID TIRES.
FOR LADIES AND GENTLEMEN.

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MANF'TRS

From \$20

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Properly Designed,
Practically Made,
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Durability and
Perfect Qualifications.
Such are the

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Cut Worm Cork-Screws
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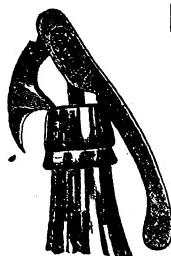


FIG. 3. Showing Davis cork-screw and fulcrum in position to pull cork.

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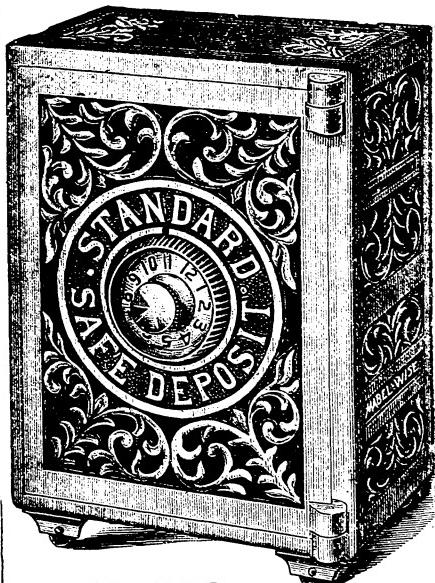
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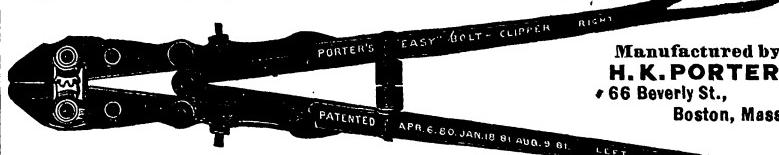
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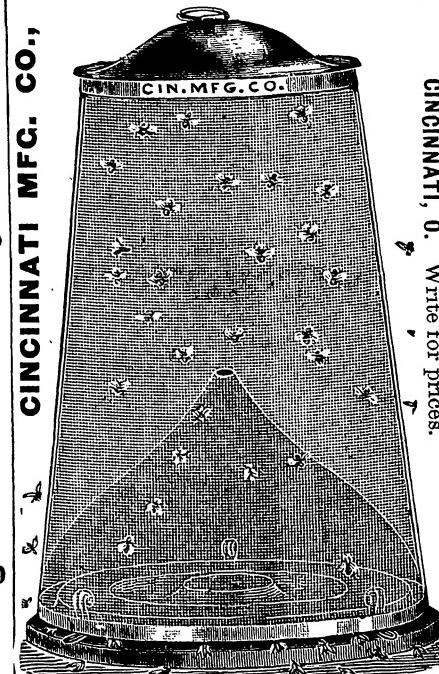
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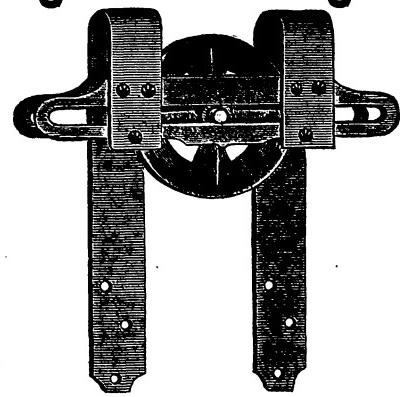
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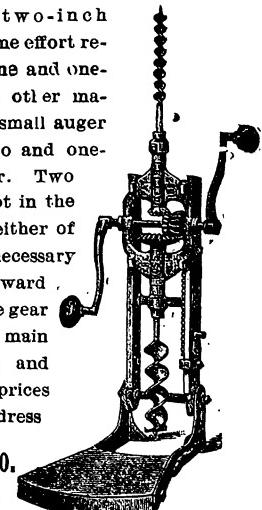
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Will operate a two-inch auger with the same effort required in using one and one-half inch in any other machine, and for the small auger have a speed two and one-half times faster. Two augers may be kept in the machine, to use either of which it is only necessary to point it downward by first taking the gear frame out of main frame, inverting and replacing it. For prices and discounts address



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THEY ARE GREAT SELLERS.

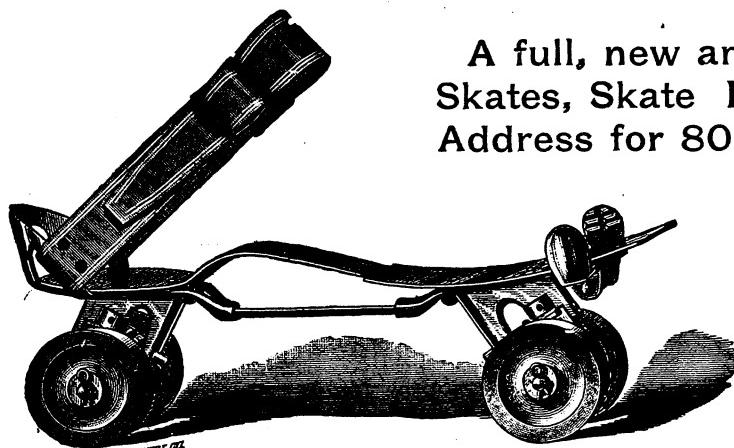
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No!
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You just pull a little catch and the lantern opens itself. It's the slickest lantern I ever saw. Each tube is made of one piece of metal, with the turns round and smooth—not like the old kind of patched up, ugly elbows; I believe that makes her draft so fine. I tell you, she's a daisy right through. Had her along that night of the blizzard—that's the time to get acquainted with a lantern. Hadn't been for the "Surprise Tubular" that night I wouldn't be here now.

SOLE MANUFACTURERS:
Ohio Lantern Co.,
TIFFIN, OHIO.



SURPRISE TUBULAR.

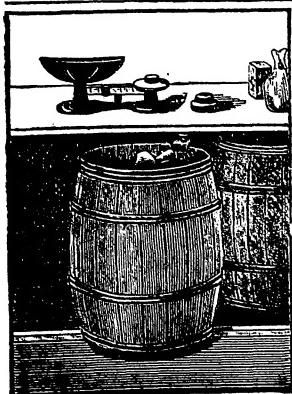
This GUN has rebounding locks and the barrels can be taken off and put on again without cocking the arm, and when cocked the hammers may be let down gradually, and without the full force of the blow. It is simple in construction, having very many less pieces than any other hammerless gun.

Easily Tipped and Cocked,
Damascus Barrels,
Handsomely Engraved,
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PRICE VERY LOW.



**Wonder Somebody Didn't
THINK OF IT BEFORE!**

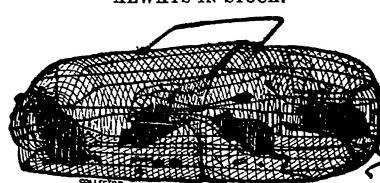
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A simple device, readily attached to any Pantry, Cupboard, Broad Shelf or under the counter in a Grocery or Hardware Store, for swinging a barrel to get at the contents easily. Price, \$1. All Hardware dealers will supply them.

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THE LEAVITT MACHINE CO.
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GENUINE **MARTY** RAT AND
MOUSE TRAPS
ALWAYS IN STOCK.



THEY DO THE WORK.
Orders solicited. Prices on application.
BURDITT & WILLIAMS,
20 Dock Square, Boston, Mass.
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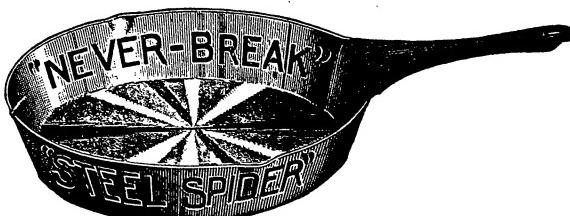
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COOKERS, COFFEE POTS AND
OTHER SPECIALTIES.



Cooks Quicker than any other
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"NEVER-BREAK"

Wrought Steel Spiders
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MIRROR POLISHED—TINNED—PORCELAINED.

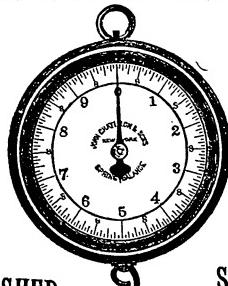


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THE BRONSON SUPPLY COMPANY,
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John Chatillon & Sons,

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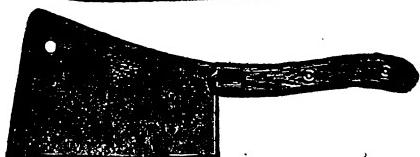


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Roasting and Baking Pan.
PLANISHED and PLAIN STEEL.



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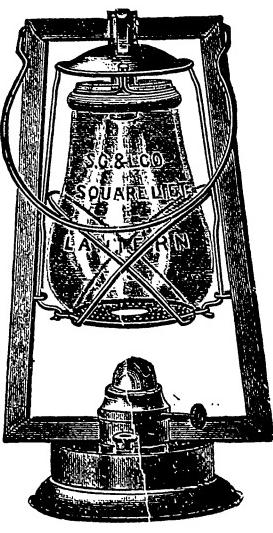
Tubular Lanterns,

Tubular Street Lamps,

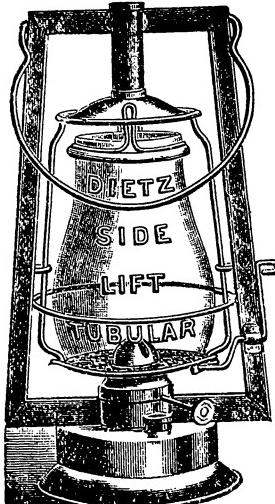
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Square Lift Wire Lan-
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When you purchase a Lantern, Street
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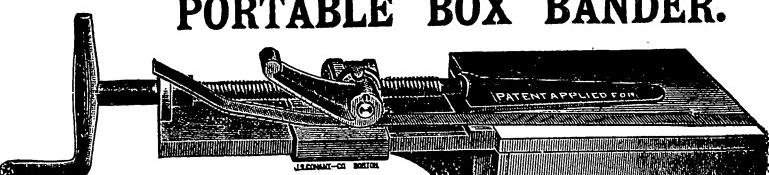
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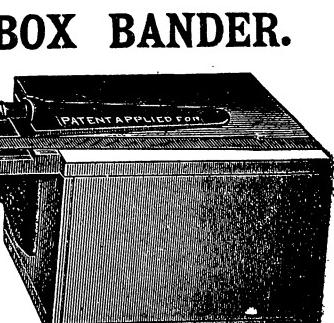
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PAYS
FOR
ITSELF.



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Lighter material can be used, saving freight and lumber.
Made of malleable iron and steel, is strong and durable,
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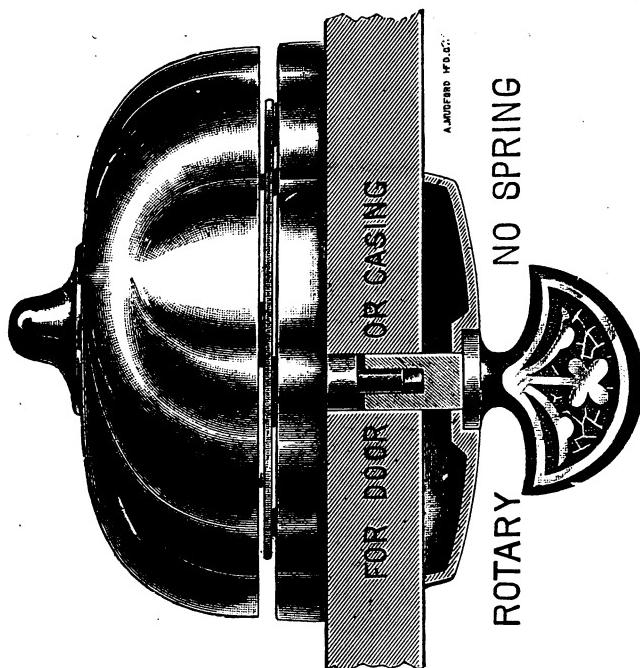
J. W. GOODELL, Manufacturer,



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NEW DEPARTURE "ROTARY" DOOR BELLS. ELECTRICAL RESULTS.

(PATENTED JULY 14, 1891; MARCH 29, 1892.)



No. 101 and 102.

Simply turning the knob about ONE-FOURTH IN EITHER DIRECTION produces about TEN CLEAR, FULL tones, which, though not startling or annoying, can be better heard all through the house than any bell ever made to imitate Electrical Results.

3 INCH.

No. 91, - - - - Nickel Plated.

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PER DOZEN, \$20.00

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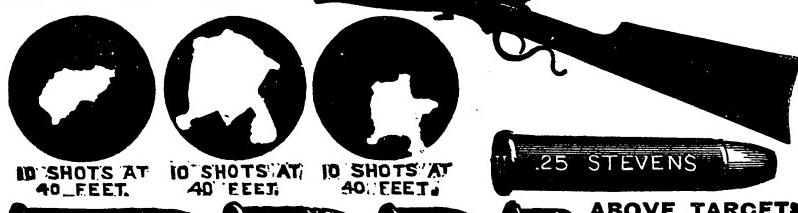
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PER DOZEN, \$24.00.

LIBERAL DISCOUNT TO THE TRADE.**JOHN H. GRAHAM & CO., 113 CHAMBERS ST., NEW YORK CITY.****GENERAL AGENTS.**

A Triumph in Small Bore Rifles. **STEVENS' "FAVORITE" RIFLE.**



Made for the 22 or 25 Rim Fire Cartridge.

WEIGHT, 4½ POUNDS.

22-INCH BARREL.

LEVER ACTION LIKE SHARPS.
TAKEN APART IN TEN SECONDS.IT IS SIMPLY IMPOSSIBLETO MAKE MORE
ACCURATE SHOOTING BARRELS
THAN ARE ON THIS RIFLE.

No. 17. Plain Open Sights.....\$12.50

No. 18. Vernier, Open Back, and Beach Front Sights.....17.00

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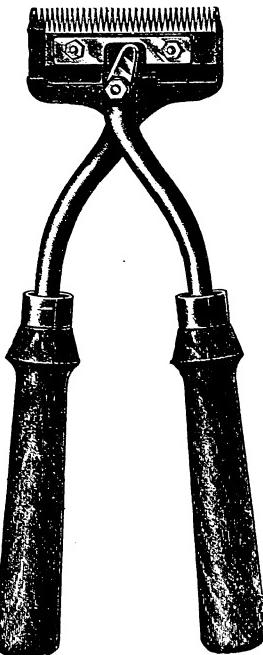
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SATISFACTORY PRICES. Standard goods. Don't fail to write when in want of Horse and Barber's Clippers, No. 20 Steel Rat Killers, Curry Combs, Metal and Wood Choker Mouse Traps Lemon Squeezers, Baxter Pattern Wrenches, &c., &c.

AMERICAN TOOL COMPANY,
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MANUFACTURERS OF

TOOL CHESTS

of all sizes, complete with tools, for Hardware, Toy, Notion and Variety trades. Factory and Salesroom,

200 West Houston Street, near Varick.
Also Machinists' Tool Chests, empty. Illustrated Catalogue and prices furnished on application.

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The Best Warehouse, Stable, Shop, Factory and Railroad Broom in the Market.

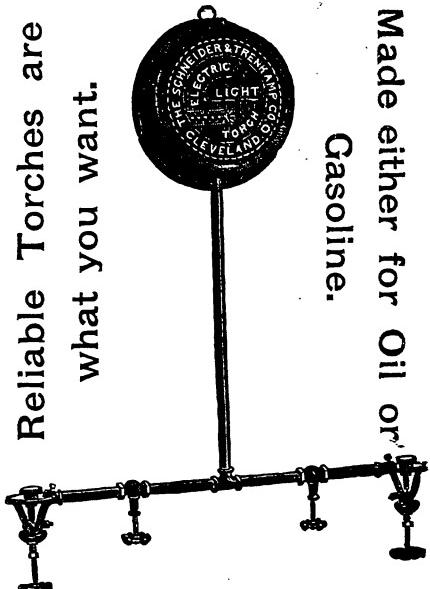
Made of Broom Corn and Rattan Reed mixed together, flat in shape, with an iron band, as shown in the cut, making it solid, substantial, and stiff, for handling the heaviest dirt. Will last longer than any other similar broom.

Brooms and Brushes for Railroad Shops, Warehouses, Street, Stable, Bloom, Chill, Casting and Moulding purposes a specialty. Write for prices.

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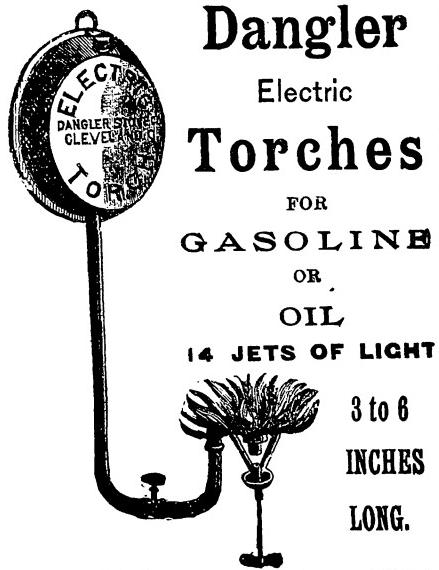


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These Torches are particularly adapted for use in Factories, Foundries, Machine Shops, Rolling Mills, Blacksmith Shops, Warehouses, &c. They make a strong white light, are free from smoke and are not affected by wind or rain. They are convenient and portable. These Torches can be run at an expense of about one-half cent to one cent per hour, burning a bright steady light which is ten times greater than the light of an ordinary gas burner.

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FOR lighting manufacturing establishments, such as Rolling Mills, Foundries, Machine Shops, Engine Rooms, &c., &c., with a convenient, portable, brilliant, steady light, and by cheaper means than by Coal Gas.

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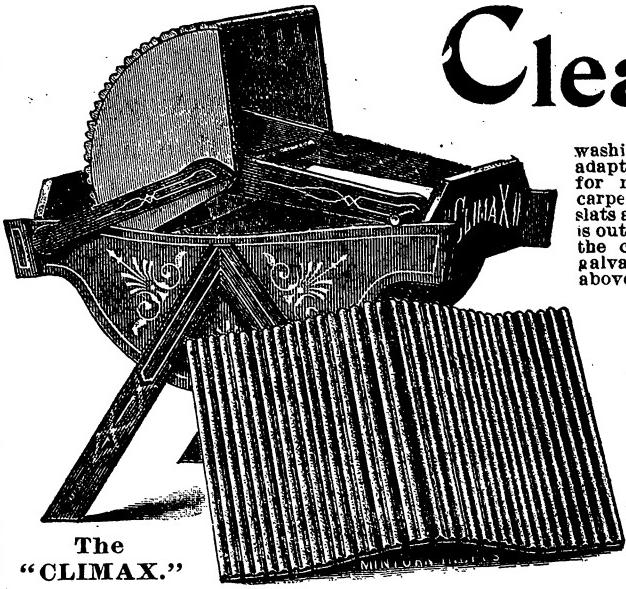
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HOLLOWARE

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Made either for Oil or Gasoline.



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Cleanest

washing machine made, especially adapted for family washing, also for rubbing out grain sacks, carpets and bedding. The bottom slats are adjustable. The rubber is out of the way when handling the clothes. The bottom is of galvanized iron No. 27. And, above all, please recollect this is no

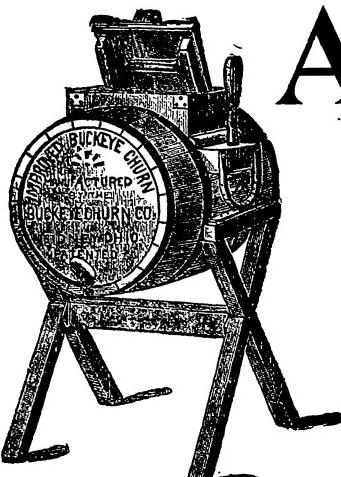
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THE STEARNS MFG. CO.,

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Manufacturers of CLIMAX WASHER, CLIMAX WOOD and CHAIN PUMPS, ETC.



A Buckeye

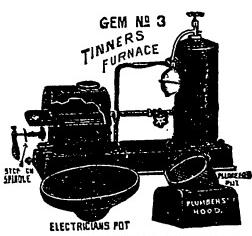
Churn is the best for making butter quick, cleanly and rapidly. There are others, but none its equal. A child delights in operating it. Order a sample. See if it doesn't sell quick. Our Queen Washing Machine is another excellent household adjunct, cheap but good. Agencies given. Write

BUCKEYE CHURN COMPANY,
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Burgess Gem Gasoline Furnaces.

All are equipped with the cylindrical slotted burner. For sale by all first class jobbers, or write us for descriptive circulars.

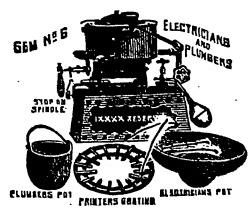
BURGESS SOLDERING FURNACE CO.,
J. BURGESS & SONS, Props. and Mfgrs.,
Columbus, Ohio.



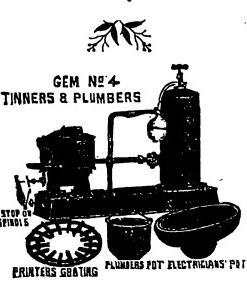
PRICE-LIST :

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| No. 3 and 4, Tin Reservoir | \$7.00 ea. |
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All guaranteed to work out of doors or on roofs. Nos. 4 and 6 will melt metal and heat coppers at the same time.



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Indispensable
to a well kept
Lawn.

A Sprinkler
which will work
satisfactorily in
spite of muddy
water.

May be easily
moved from
place to place
without going
near it

SOLD BY ALL
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ADVANTAGES:

1st. Each machine is furnished with a cord or rope, so that the Sprinkler may be easily moved, when running, without going near it.

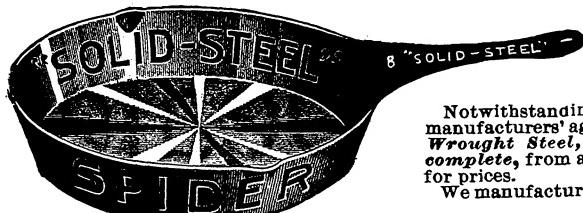
2d. The water passes through a strainer before it enters the small perforations, which are thereby prevented from filling up.

3d. It is so constructed that the weight of its revolving parts is removed by the pressure of the water, thus overcoming unnecessary wear.

4th. All parts of the machine are made sufficiently strong for ordinarily rough usage and are interchangeable.

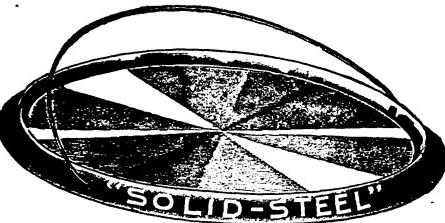
5th. The machine is TINNED and NICKEL PLATED and is of very handsome appearance.

"SOLID-STEEL" SEAMLESS HOLLOW WARE.



BRILLIANT FINISH.

Notwithstanding the claims made by some manufacturers' agents, our spiders are made from Wrought Steel, Without Seams or Rivets, complete, from a single piece of metal. Write for prices.
We manufacture our own goods.

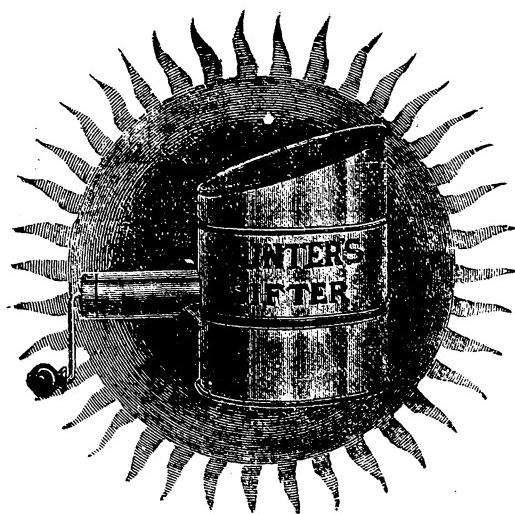


Made either with Balls or Solid Handles.

No Seams, no Rivets in "Solid-Steel" Ware.

The Cleveland Stamping & Tool Co., Cleveland, O.

We are in shape to figure on light and heavy stamping, and in addition to the above we build Dies and Stamping Machinery.



Imitations

of the famous Hunter's Sifters are now plentiful, the fact, nevertheless, is that there's but one genuine Hunter Sifter, that's the one we are making and which we ask you to buy.

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The Sun Manufacturing Co.,

Successors to the Jno. M. Waddel Mfg. Co.,

ARE SOLE OWNERS AND MANUFACTURERS OF

Waddel's Improved Coffee Mills,

Cathedral Gong Money Drawer and Surprise Rat Traps.

Beware of Infringements.—We will protect our Patents.

"THE 'SUN' ONLY, SHINES FOR ALL."

A New Name, A New Reputation,

A New Line of Coffee Mills

That under the SUN Brand shine as leaders.

RAPID GRINDERS that will STAND THE WEAR.

STEEL ALLOY BUHRS,

A metal of recent discovery for this purpose used solely and only by the SUN. Warranted to outwear, outgrind and outsell any Coffee Mill ever put on the market.

We Challenge a Competing Test for Rapid Grinding and Wearing Surface.

Our New Line bears the Sun Trade Mark
and is labeled Steel Alloy Buhrs.

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Order a Sample Mill.

THE SUN MANUFACTURING CO.,

Greenfield, Ohio, U. S. A.,

MANUFACTURERS OF

Cash Registers, Money Drawers, Coffee Mills and Wooden Ware Specialties.



Say! As a Dealer

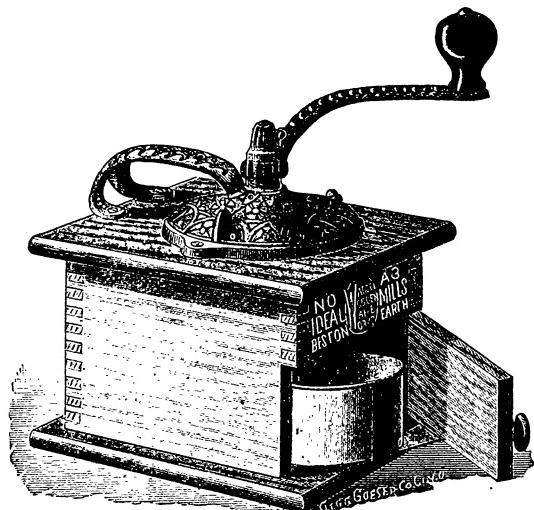
Have'nt you handled a variety of washing machines; some poor, some not much better and some of the best? And now you're looking for perfection. This is found only in

NEFF'S

Order one and see for yourself if it's not so.

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"BIG W. W. W. W. FOUR."



A certain company are claiming to be "sole manufacturers of Waddel's Coffee Mills," ("If you see it in the sun its so"). The statement is designed to mislead the trade. The old line of Waddel's Coffee Mills, which have been on the market the past five years, are not manufactured by us. We are making a new line of Coffee Mills which are guaranteed to grind twice as fast as similar goods, and each mill is labeled under a trade-mark "Ideal Coffee Mills manufactured by Waddel Woodenware Works; best on earth." Specify the new goods and order "Ideal Mills," and our word for it, you will not make a mistake. Address plainly

Waddel Wooden Ware Works or "4 W.,"

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MANUFACTURERS OF

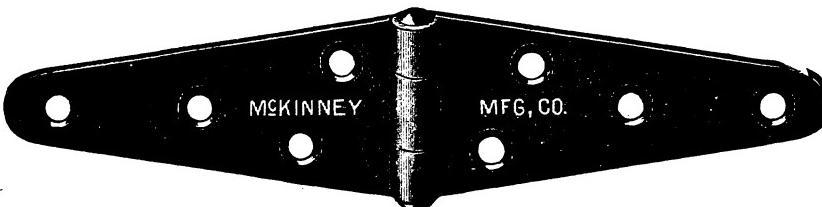
CASH REGISTERS, MONEY DRAWERS, COFFEE MILLS, RAT TRAPS and NOVELTIES.

WE CLAIM

That one pair of our Celebrated Steel Hinges will outwear two pair of the Flimsy Invention now being forced upon the attention of the trade.

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Steel



Hinges.

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"NONE BETTER."

THE "NOISELESS" STORE LADDER.

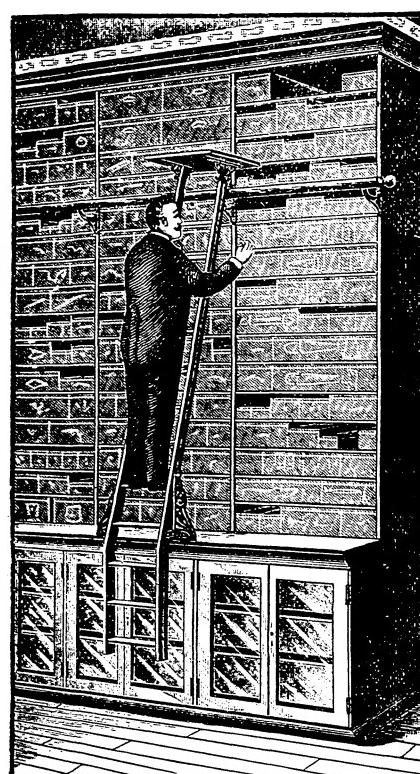


The latest and best. Perfectly noiseless. Neat in appearance.

Manufactured by

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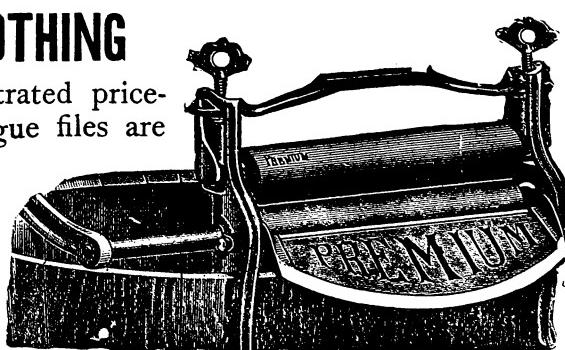
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The Newest, Neatest, Simplest, Easiest Operated and Safest Store Ladder made. Ladders are not suspended, but supported from below on wheels. Move easier with operator on than others when empty. Highly finished, and very handsome. Made in different grades and prices to suit. Send for illustrated catalogue and prices. See this space next week for other styles.

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CAN RECOMMEND THE

CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

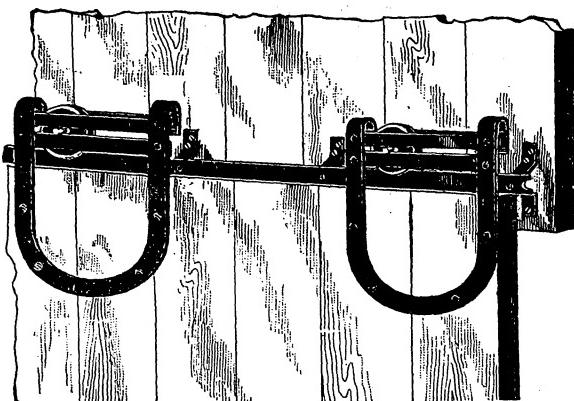
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Lane's Patent Steel Barn Door Hangers,

"O. N. T." Track for same.

The first Anti-friction Steel Door Hanger placed upon the market and to-day stands as the original and best. Sold in all the States of the Union, as well as abroad. Also Lane's Noiseless Steel Parlor Door Hanger, using Single Steel Track, a great success.

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"He had also in his possession 55 skeleton keys which the police claim would open any door."—Chicago Tribune. You are selling that kind of a lock to your customers every day. Sell a lock that has a guar-

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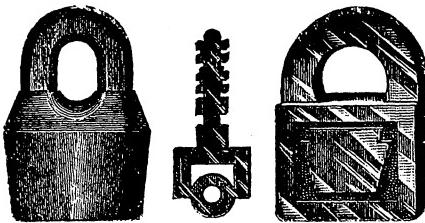
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tea against
Sneak Thieves.

It don't cost you any more and is sure to give you customers more confidence in you and your goods. THE CRAIG LOCK CANNOT BE PICKED. That's our guarantee.

KEystone Lock Works,
Established 1879.
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THE EMPIRE DOUBLE DAUBER.
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TWO FOR ONE.
SENT BY MAIL FOR
25 CTS.
CLEAN OFF BEFORE APPLYING THE BLACKING.
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PATENT PERFECTION PADLOCK

Eight Tumblers. Key Turning Both Ways.

Sizes: $\frac{1}{4}$ inch to $2\frac{1}{4}$ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, $\frac{1}{2}$ and $\frac{3}{4}$ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

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PADLOCKS

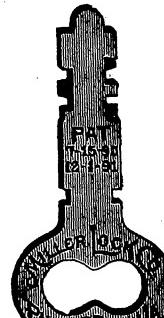
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| 999 | 2 | 8 " | 8.00 |
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SOLID BRAIDED SASH CORDS, &c.

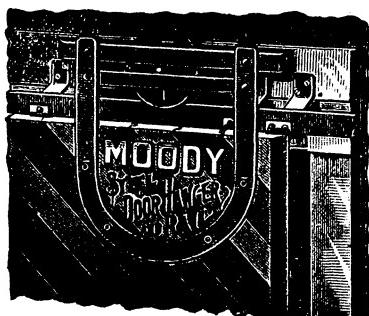
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The Only Bracing Bracket Made.

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| No. 7, to run 15 feet, 5½ in. wheel, | 22.00 |
| RAIL, per foot..... | 6½ cents |

RAIL, per foot.....

The Only Bracing Bracket Made.

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| RAIL, per foot..... | 6½ cents |

RAIL, per foot.....

Artistic Designs IN BRONZE HOUSE TRIMMINGS.

LOCKS AND HARDWARE

For Residences and Public Buildings.

"VASSAR"

CYLINDER LOCKS AND LATCHES.

READING HARDWARE CO.

NEW YORK. PHILADELPHIA. CHICAGO.

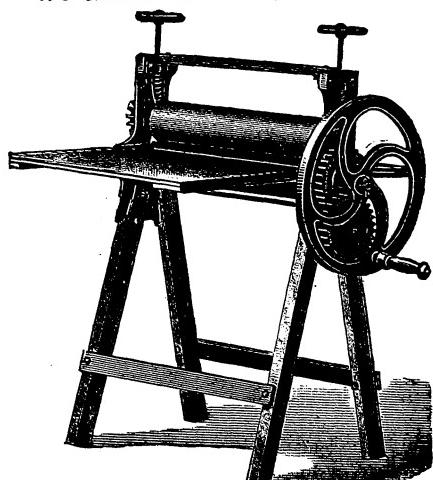
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The Family Mangle.

WARRANTED TO DO
Better Work than Hand-work.

SAVES all the fuel.
two-thirds the work.
Keeps the linen whiter.

We Guarantee Every Machine.

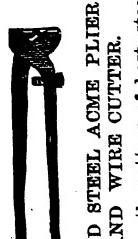


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Made in all Sizes.

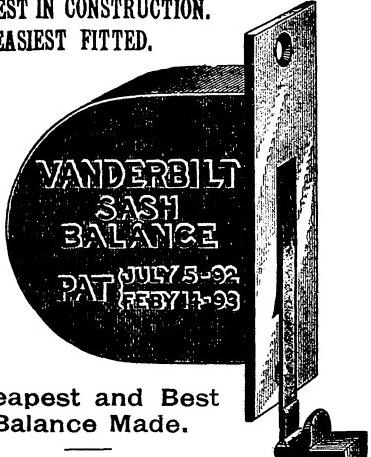


SOLID STEEL ACME PLIER
AND WIRE CUTTER.
Made with cutters of best steel.

ACME CUTTING NIPPER.
Jaws of Choiceest Tool Steel, dove-
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SIMPLEST IN CONSTRUCTION.
EASIEST FITTED.



Cheapest and Best
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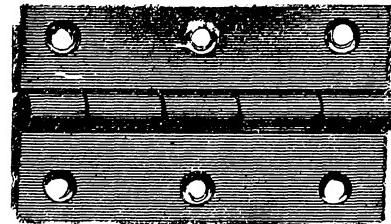


Single
and
Double Blades.

Handle and Blade Formed in one piece.
Always Clean. Indestructible.
No Rivets to Wear Loose.
No Wooden Handle to Shrink, Swell, Loosen,
Split, or Fill with Rancid Grease.

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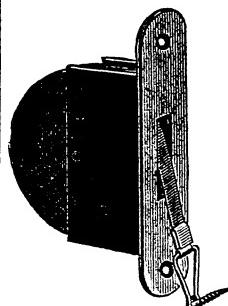
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BRASS, GALVANIZED & SHIP CHANDLERY
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and low in price.

By using a steel
frame our balance is
much superior to
other makes.

Can be applied to
old as well as new win-
dows.

Requires no box
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Warranted 15 years.
Cord lasts 5 years.
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The Best and most Practical
substitute for weights invented.
The most Durable, the Cheap-
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STEWART & BAKER,
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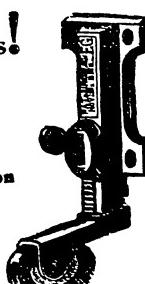
No more Slammering!
...Doors!

Our Combination

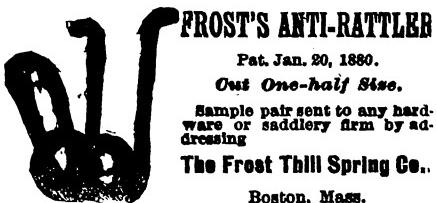
Door Check
Lock and
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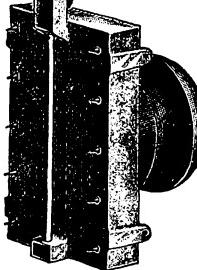
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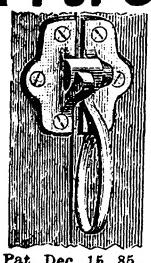


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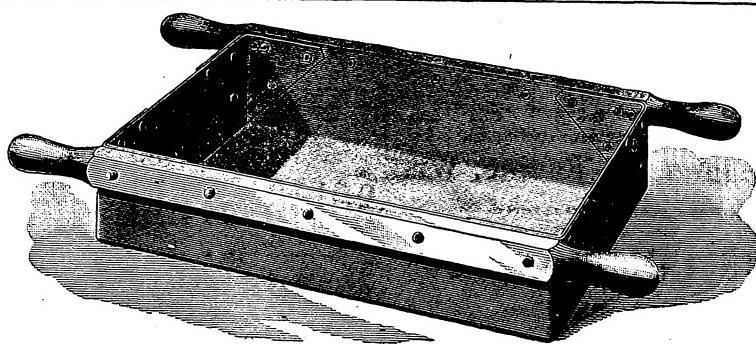
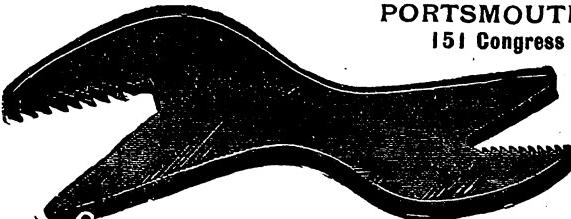
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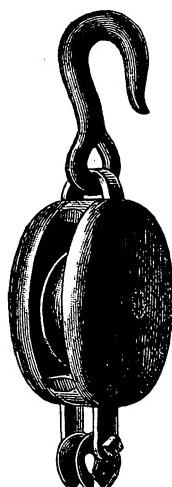
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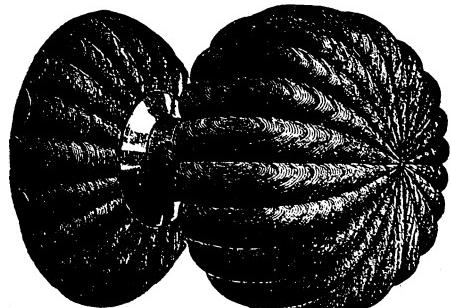
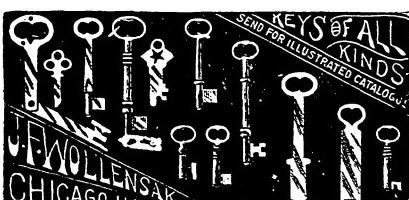


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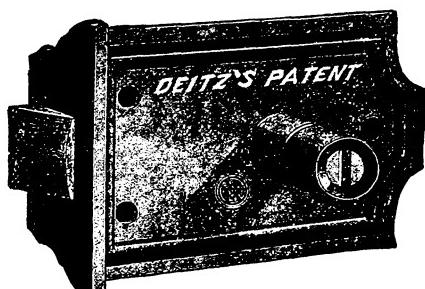
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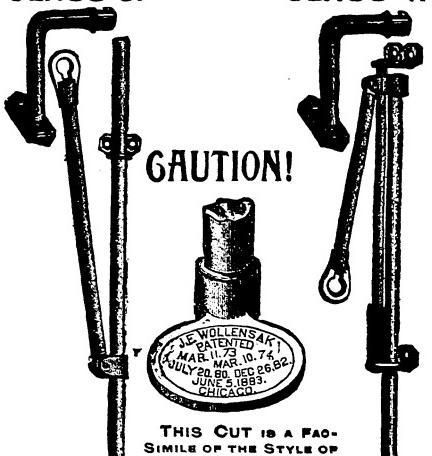
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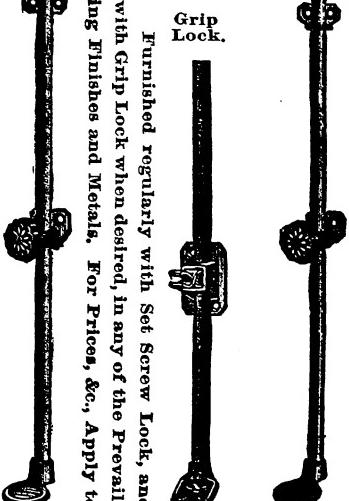
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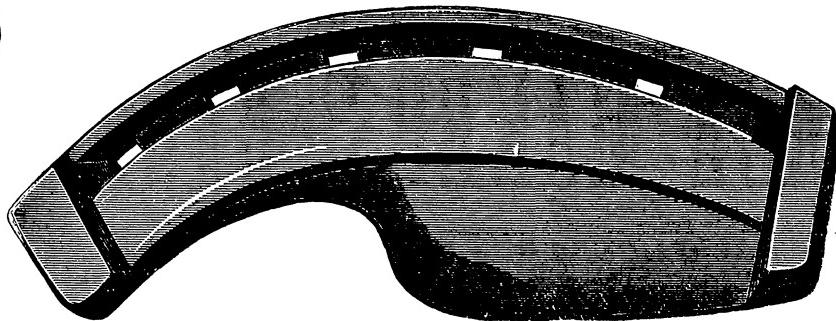
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| 3 | 1 | 70 | 13 | 32 | 1 80 |
| 4 | 16 | 80 | 14 | 1 | 2 10 |
| 5 | 14 | 80 | 15 | 34 | 2 75 |
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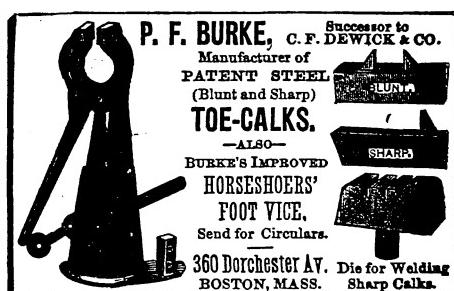
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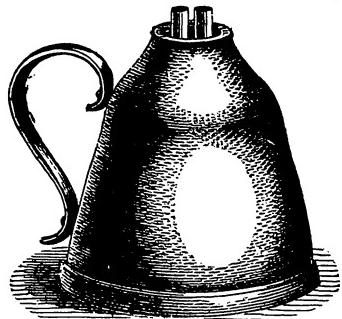
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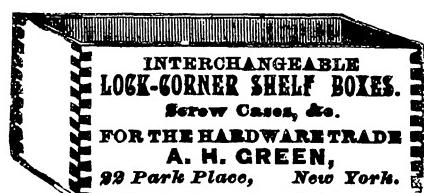
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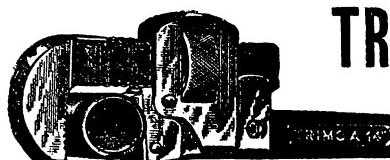
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Case-Hardened Throughout.

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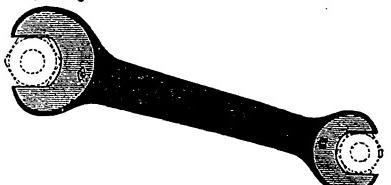
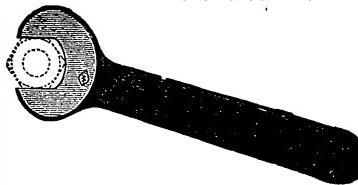
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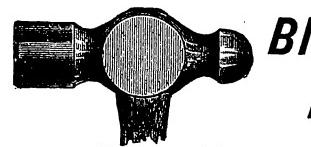
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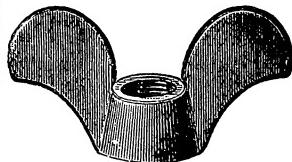
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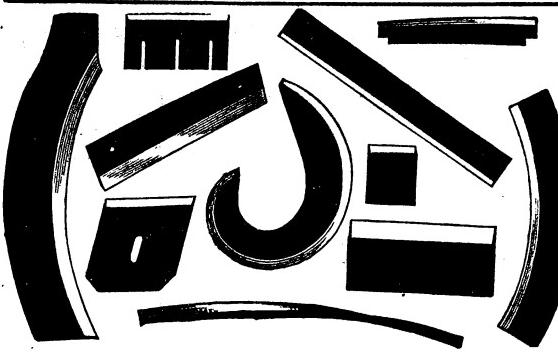
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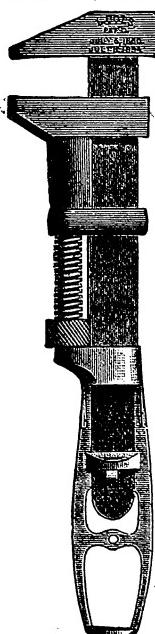


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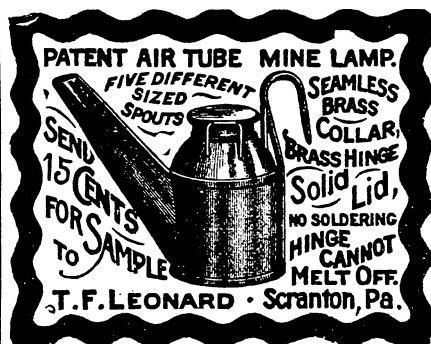
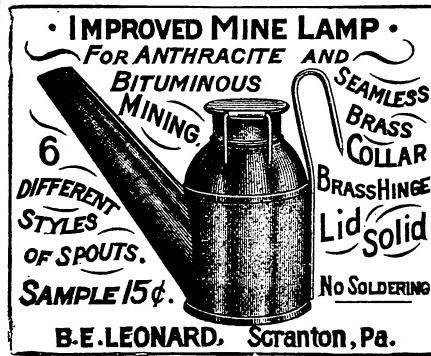
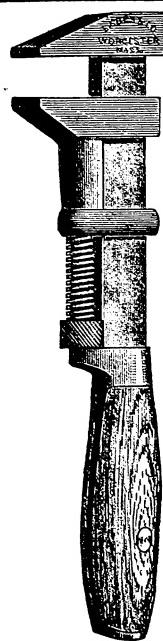
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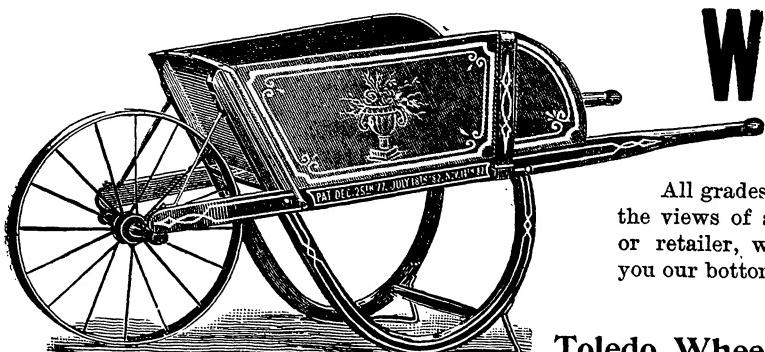
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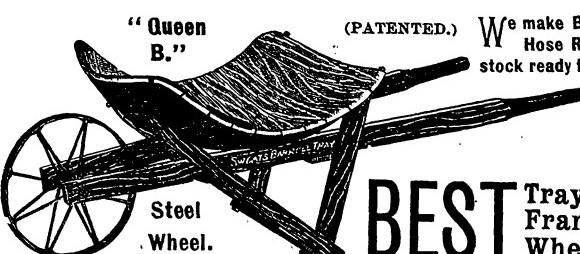
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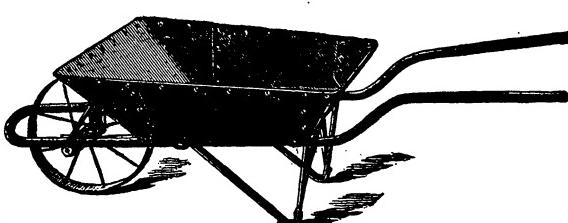
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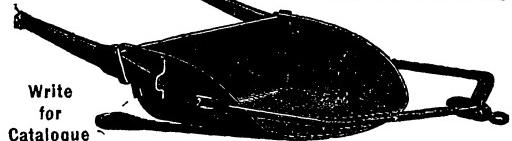
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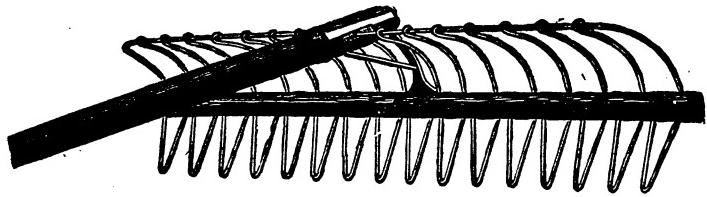
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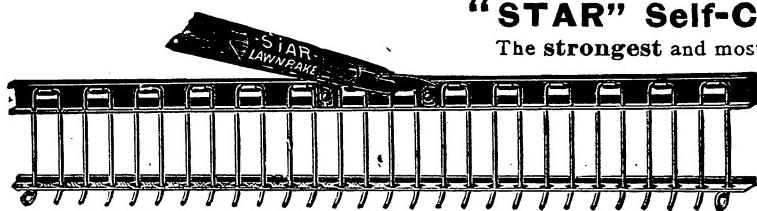
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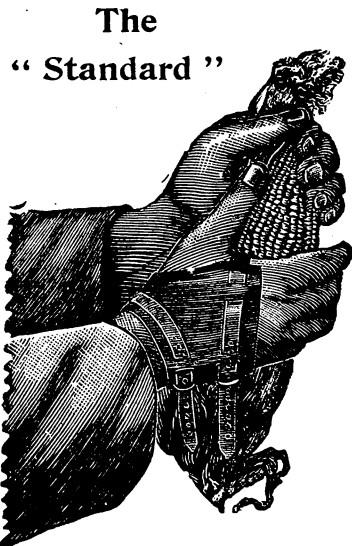


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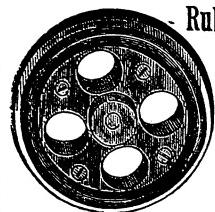
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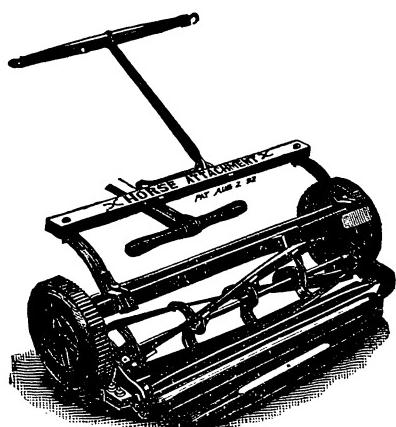
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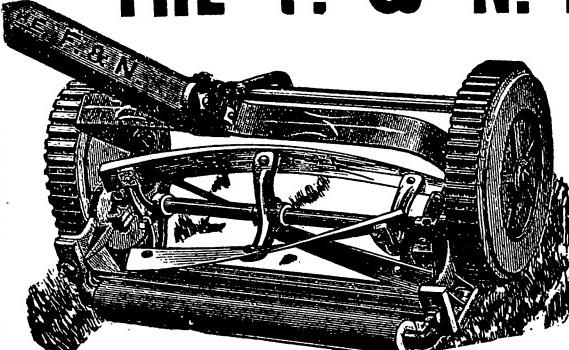
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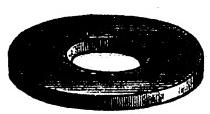
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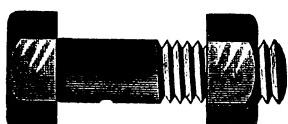
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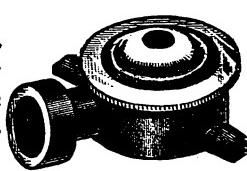
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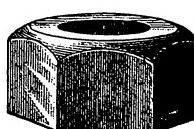
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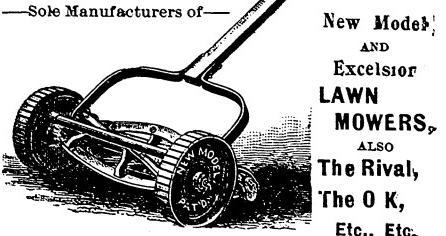
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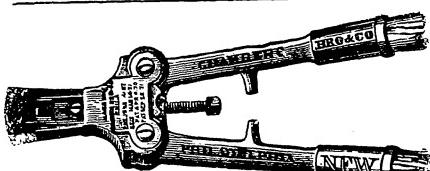
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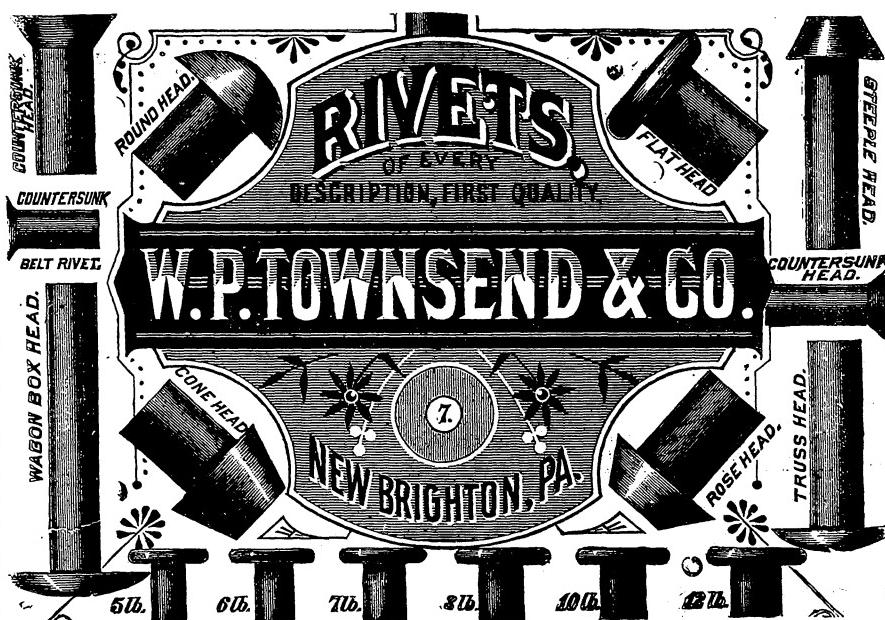
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Bliss, E. W., Co., Brooklyn, N.Y.
Crosby, G. A. & Co., Chicago, Ill.
Ferracutte Mch. Co., Bridgeton, N.J.
Miner & Peck Mfg. Co., New Haven, Conn.
Robinson, J. M. & Co., Cincinnati, O.
Stiles & Parker Press Co., Brooklyn, N.Y.
Vulcan Iron Works, Chicago, Ill.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
- Dumb Waiters.**
Storm Mfg. Co., Newark, N.J.
- Dust Beaters.**
Peabody & Parks, Troy, N.Y.
- Dynamite.**
New York Powder Co., 62 Liberty St., N.Y.
- Dynamos.**
C. & C. Electric Motor Co., 402 and 404 Greenwich St., N.Y.
Detroit Dynamo Co., Detroit, Mich.
Lovel Mfg. Co., Ltd., Erie, Pa.
Zucker & Levett Chemical Co., 10-14 Grand St., N.Y.
- Edge Tools. Makers of.**
Such Bros., Millbury, Mass.
Butcher, W. & S., 135 Duane St., N.Y.
Buffalo Edge Tool Wks., Buffalo, N.Y.
Plumb, Fayette R., Philadelphia.
Warren Axe & Tool Wks., Warren, Pa.
White, L. & I. J. Co., Buffalo, N.Y.
- Egg Beaters.**
North Bros. Mfg. Co., Philadelphia.
- Electric Bells and Supplies.**
Ostrander, W. R. & Co., 204 Fulton St., New York.
- Wollensak, J. F., Chicago, Ill.**
- Electric Dynamo Machines.**
Eddy Electric Mfg. Co., Windsor, Conn.
Hanson & Van Winkle Co., Newark, N.J.
- Electric Welding.**
Thomson Electric Welding Co., Boston, Mass.
- Electro-Platers.**
Boardman, L. & Son, East Haddam Ct.
- Elephant Buckets.**
W. J. Clark & Co., Salem, Ohio.
- Elevators. Makers of.**
Link-Belt Engineering Co., Phila., Pa.
Morse, Williams & Co., Phila., Pa.
Salem Fdry & Mch. Co., Salem, Mass.
- Emery and Emery Wheels.**
Bell, Geo. E., 36 John St., N.Y.
Grant Corundum Wheel Mfg. Co., Worcester, Mass.
N.Y. Belting & Packing Co., Ltd., N.Y.
Northampton Emery Wheel Co., Leeds, Mass.
Norton Emery Wheel Co., Worcester, Mass.
Springfield Emery Wheel Mfg. Co., Bridgeport, Conn.
- Enamels.**
Nubian Iron Enamel Co., Cragin, Ill.
- Engineers and Contractors.**
Aiken Henry, Pittsburgh, Pa.
Artificial Gas Engineering Co., Pittsburgh, Pa.
Garten, Henry J., Pittsburgh, Pa.
Herrick, J. A., 284 Pearl St., N.Y.
Kennedy, Julian, Pittsburgh, Pa.
Larchlin, Alex. & Co., Pittsburgh, Pa.
Lean, D. R. Co., Pittsburgh, Pa.
McClure, Amster & Co., Pittsburgh, Pa.
Pittsburgh Iron & Steel Engineering Co., Pittsburgh, Pa.
Roberts, Frank C., Philadelphia, Pa.
Smythe, J. R. Co., Incorporated Pittsburgh, Pa.
Swindell, W. & Bros., Pittsburgh, Pa.
Wilkie, Bothwell & Co., Ltd., Pittsburgh, Pa.
Witherow, Jas. P. Co., Pittsburgh, Pa.
- Engines, Gas.**
Otto Gas Engine Works, Phila., Pa.
Rollason Gas Engine, Havemeyer Bldg., N.Y.
- Engines, Steam. Makers of.**
Bass Foundry & Machine Works, Ft. Wayne, Ind.
Buckeye Engine Co., Salem, O.
Erie Engine Works, Erie, Pa.
Harrisburg Fdy. & Machine Works, Harrisburg, Pa.
Lane & Bodley Co., Cincinnati, O.
Norwalk Iron Works Co., So. Norwalk, Conn.
Phila. Engineering Works, Phila., Pa.
Phoenix Iron Wks. Co., Meadville, Pa.
Shipman Engine Co., Boston, Mass.
Southwark Foundry and Machine Co., Phila., Pa.
Tod, William & Co., Youngstown, O.
Wetherill, Robt. & Co., Chester, Pa.
- Exhaust Tumblers.**
Sweester, W. A., Brookton, Mass.
- Expansion Bolts.**
Boone, W. C. Mfg. Co., Boonton, N.J.
Church, Isaac, Toledo, O.
- Faucets. Self-Measuring.**
Lane Bros., Poughkeepsie, N.Y.
- Faucets. Wooden. Makers of.**
Boston & Lockport Block Co., Boston, Mass., and Lockport, N.Y.
John Sommer's Son, Newark, N.J.
- Feed-Water Heaters.**
Davis, J. B. & Son, Hartford, Conn.
Goubert Mfg. Co., 32 Cortlandt St., N.Y.
Harrison Safety Boiler Wks., Phila., Pa.
National Pipe Bending Co., New Haven, Conn.
Webster, Warren & Co., Camden, N.J.
Whitlock Coll Pipe Co., Elmwood, Conn.
- Fencing. Iron and Wire.**
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Clinton Wire Cloth Co., Clinton, Mass.
DeKalb Fence Co., DeKalb, Ill.
Gilbert & Bennett Mfg. Co., 42 Cliff St., Hartman Mfg. Co., Ellwood City, Pa.
Kilmer Mfg. Co., Newburgh, N.Y.
- Mast, Foos & Co., Springfield, O.**
The Van Dorn Iron Works Co., Cleveland, O.
Reliance Wire & Iron Wks., Milwaukee.
- Files, Importers of.**
Moss, F. W., 80 John, N.Y.
- Files and Rasps, Manufacturers of.**
Barker & White, Troy, N.Y.
Barnett, G. & H., 41 & 43 Richmond Phila.
Butcher, W. & S., 135 Duane St., N.Y.
McCaffrey File Co., Philadelphia.
Nicholson File Co., Providence, R.I.
- Fire Brick, Makers of.**
Borgner, Cyrus, Philadelphia, Pa.
Gardner, Jas. & Son, Cumberland, Md.
Kreischer & Sons, foot W. Houston, St.
McLeod & Henry Co., Troy, N.Y.
Maurer, H. & Son, 420 E. 23d, N.Y.
Ostrander Fire Brick Co., Troy, N.Y.
Valentine, M. L. & Bro., Woodbridge.
- Fire Sets.**
Troy Nickel Works, Troy, N.Y.
- Fishing Tackle.**
Dame, Stoddard & Kendall, Boston, Mass.
- Flint and Emery Paper.**
Baeder, Adamson & Co., Phila., Pa.
- Flour Sifters.**
Meyers, J. Mfg. Co., Covington, Ky.
- Fly Fans.**
Matthai, Ingram & Co., Baltimore, Md.
- Fly Traps.**
Cincinnati Mfg. Co., Cincinnati, O.
- Feeder Cutters.**
Silver Mfg. Co., Salem, O.
- Forges, Portable, &c.**
Bullock Bellows Co., Cleveland, O.
Buffalo Forge Co., Buffalo, N.Y.
Champion Blower & Forge Co., Lancaster, Pa.
Empire Portable Forge Co., Lansingburg, N.Y.
Foos Mfg. Co., Springfield, Ohio.
Sturtevant, E. F. Co., Boston, Mass.
- Forgings, Iron and Steel.**
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Steel-Cambria Iron Co., Johnstown, Pa.
Scranton Forging Co., Scranton, Pa.
- Foundry Facings.**
Chicago Fdy. Supply Co., Chicago, Ill.
MacKellar Foundry Facing & Supply Co., Quincy, Ill.
Paxton, J. W. & Co., Phila.
S. Obermeyer Co., Cincinnati, O.
Smith, J. D. Fdy. Supply Co., Cinn., O.
- Foundry Middles.**
Estey, W. S., 65 Fulton, N.Y.
- Foundry Supplies.**
Chicago Fdy. Supply Co., Chicago, Ill.
Colligan, Victor, Detroit, Mich.
MacKellar Fdy. Facing & Supply Co., Quincy, Ill.
S. Obermeyer Co., Cincinnati, O.
Paxton, J. W. & Co., Philadelphia.
Smith, J. D. Fdy. Supply Co., Cinn., O.
- Friction Clutches.**
Keystone Clutch & Mch. Wks., Phila., Pa.
Moore & White Co., Philadelphia, Pa.
- Fruit Presses.**
Enterprise Mfg. Co., Philadelphia, Pa.
- Furnaces, Foundry.**
Byram & Co., Detroit, Mich.
- Furnaces, Gasoline.**
Burkess Soldering Fee. Co., Columbus, Ohio.
- Gas Producers.**
Wood, R. D. & Co., Philadelphia, Pa.
- Gas & Steam Fitters' Supplies.**
Pancoast, Henry B. & Co., Phila., Pa.
- Gauge, Rolling Mill.**
Haines Gauge Co., Philadelphia, Pa.
- Gear Cutters.**
D. E. Whiton Mach. Co., New London, Conn.
- Gears.**
Boston Gear Works, Boston, Mass.
New Process Raw Hide Co., Syracuse, N.Y.
Poole, Robt. & Son Co., Baltimore, Md.
Union Fdy. & Mch. Co., Pittsburgh, Pa.
- Glass Boards.**
Canton Saw Co., Canton, O.
- Glass Tubes.**
Ashcroft Mfg. Co., 111 Liberty St., N.Y.
- Glass Cutters.**
Monce, S. G., Bristol, Conn.
- Glue.**
Baeder, Adamson & Co., Phila., Pa.
Russia Cement Co., Gloucester, Mass.
- Grass Catchers.**
Supplee Hardware Co., Phila., Pa.
Thompson Mfg. Co., Elkhart, Ind.
- Grinding and Polishing Machines.**
Herrick & Cowell, New Haven, Conn.
Norton Emery Wheel Co., Worcester, Mass.
- Grinding Mills.**
Foos Mfg. Co., Springfield, O.
- Grindstone Dressing Machinery.**
Slake & Johnson, Waterbury, Conn.
- Grindstones.**
Cleveland Stone Co., Cleveland, O.
- Gun Implements.**
Union Edw. Co., Torrington, Conn.
- Gunpowder, Makers of.**
Laflin & Rand Powder Co., 29 Murray St., N.Y.
- Hand Carts.**
Lansing Wheelbarrow Co., Lansing, Mich.
- Hand Screws.**
Grand Rapids Hand Screw Co., Grand Rapids, Mich.
- Halter Chains.**
Kelle & Woolworth, Niagara Falls, N.Y.
- Handles.**
New Process Raw Hide Co., Syracuse, N.Y.
New York Mallet and Handle Wks., 456 E. Houston St., N.Y.
- Hangers, Door.**
Chicago Spring Butt Co., Chicago, Ill.
Cronk Hanger Co., Elmira, N.Y.
Lane Bros., Poughkeepsie, N.Y.
Victor Mfg. Co., Newburyport, Mass.
- Hardware Comm'rs. Merchants.**
Dochser, Martin, 88 Chambers, N.Y.
Field, Alfred & Co., 93 Chambers St., N.Y.
Graham, John H. & Co., 111 Chambers St., New York.
- Jacobus, W.H., 90 Chambers, N.Y.**
- Hardware Manufacturers.**
Hotchkiss, E. S., Bridgeport, Conn.
Stearns, E. C. & Co., Syracuse, N.Y.
Union Mfg. Co., 103 Chambers, N.Y.
Yale & Towne Mfg. Co., Stamford, Conn.
- Hardware Mfrs. Agents.**
Bingham, W. Co., Cleveland, O.
Graham, John H. & Co., 113 Chambers, Hussey E. J. & Co., 80 John St., N.Y.
McCoy, Jos. F. Co., 26 Warren St., N.Y.
Stickley, Sweet & Lyon, 35 Barclay, N.Y.
Underhill, Clinch & Co., 94 Chambers St., N.Y.
- Hardware Specialties.**
Acme Shear Co., Bridgeport, Conn.
Belden Machine Co., New Haven, Conn.
Clark Mfg. Co., Buffalo, N.Y.
Empire Portable Forge Co., Lansingburg, N.Y.
- Enterprise Mfrs. Co., Philadelphia, Pa.**
Ette & Henger Mfr. Co., St. Louis, Mo.
Gwinnett Mfr. Co., Hamilton, O.
Haines & Zimmerman, Phila., Pa.
Hart, H. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn.
Johnson, S. C., Racine, Wis.
Knapp & Cowles Mfg. Co., Bridgeport, Conn.
- Iron Bros. Mfrs. Co., Philadelphia, Pa.**
Peabody & Parks, Troy, Mich.
- Cambridge Iron & Steel Co., Cambridge, Ohio.**
W. Dewees Wood Co., Linn., McKeesport, Pa.
- Ironwork, Ornamental.**
Barnum, S. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Foos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.
- Keys.**
Wollensak, J. F., Chicago, Ill.
- Ladies.**
Detroit Fdy. Equipment Co., Detroit, Mich.
- Lamp Stoves.**
Glazier Stove Co., Chelsea, Mich.
- Lamps.**
Standard Lighting Co., Cleveland, O.
- Lanterns.**
Dietz, R. E. Co., 60 Laight St., N.Y.
Ohio Lantern Co., Tiffin, Ohio.
Steam Gauge & Lantern Co., Syracuse, N.Y.
- Lathes.**
Draper Machine Tool Co., Worcester, Mass.
Johnson, Israel H., Jr., & Co., Philadelphia, Pa.
Seneca Falls Mfg. Co., Seneca Falls, N.Y.
- Lathing, Wire.**
Clinton Wire Cloth Co., Clinton, Mass.
N.J. Wire Cloth Co., Trenton, N.J.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Laundry Machines.**
Johnson, S. C., Racine, Wis.
- Lawn Mowers.**
Chadborn & Coldwell Mfg. Co., Newburg, N.Y.
Champion Mfr. Co., Richmond, Ind.
Coldwell Lawn Mower Co., Newburg, N.Y.
F. & N. Mfg. Co., Richmond, Ind.
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N.Y.
Mast, Foos & Co., Springfield, O.
Stearns, E. C. & Co., Syracuse, N.Y.
Supplies Hdwy. Co., Phila., Pa.
- Lawn Rakes.**
Schaeffer & Co., Dayton, Ohio.
Syracuse Specialty Mfg. Co., Syracuse, N.Y.
- Lawn Sprinklers.**
Ette & Henger Mfg. Co., St. Louis, Mo.
McGowan, John H. Co., Cincinnati, O.
- Lawn Sweepers.**
Lape, W. E., Syracuse, N.Y.
- Lemon Squeezers.**
Ripley Mfg. Co., U. Ionville, Conn.
- Letters, Paper.**
Tablet & Ticket Co., Chicago, Ill.
- Levels.**
Davis & Cook, Watertown, N.Y.
Richardson, C. F., & Son Athol, Mass.
- Locks & Knobs. Manufacturers of.**
Deltz, A. E., 97 Chambers, N.Y.
Keyless Lock Co., Chicago, Ill.
Reading Hdwy. Co., Reading, Pa.
Smith & Egge Mfg. Co., Bridgeport, Conn.
Yale & Towne Mfg. Co., Stamford, Conn.
- Lubricators.**
Wadham's Oil & Grease Co., Milwaukee, Wis.

Machinery.

Am. Tool Works, Cleveland, Ohio.
Barnes, W. F., & John Rockford, Ill.
Bement, Miles & Co., Philadelphia, Pa.
Bigelow, C. E., 45 Decy, N.Y.
Blawie & Keele Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bliss, E. W. Co., Brooklyn, N.Y.
Bogert, Jno. L., Flushing, N.Y.
Briggs, Marvin, 12 Broadway, N.Y.
Carl's Sons, Thos., Allegheny, Pa.
Chinn, Milling Mch. Co., Cincinnati, Ohio.
Clapp, Geo. M., agt., 74 Cortlandt, N.Y.
Coulter & McKenzie Mch. Co., Bridgeport, Conn.
Cruikshank, D. B., Providence, R.I.
Derrick & Harvey Mch. Co., Baltimore, Md.
Ehrhardt, Gustave & Sons Pittsburgh, Pa.
Fitchburg Mch. Works, Fitchburg, Mass.
Garvin Mch. Co., Leight & Canal Sts.
Gould & Eberhardt, Newark, N.J.
Hamilton Mch. Tool Co., Hamilton, O.
Harrington, E. S. Son & Co., Phila.
Henderer, A. L., Wilmington, Del.
Hendey Machine Co., Torkington, Jr.
Genley Mch. Tool Wks., Richmond, Ind.
Hill, Clarke & Co., Boston, Mass.
Ingersoll Milling Machine Co., Rockford, Ill.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Vt.
Kelly, Daniel, Phila., Pa.
Lodge & Shipley Mch. Tool Works, Cincinnati, O.
Longmire & Co., Philadelphia, Pa.
McCormick, J. J., 38 Cortlandt, N.Y.
Machine Supply Co., Rochester, N.Y.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morton Mfg. Co., Muskegon Heights, Mich.
National Machinery Co., Tiffin, Ohio.
Newark Mch. Tool Works, Newark, N.J.
New Haven Mfg. Co., New Haven, Conn.
Niles Tool Wks., 138 Liberty St., N.Y.
Pedrick & Aver, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N.Y.
Poole, Robt. & Son Co., Baltimore, Md.
Powell Planer Co., Worcester, Mass.
Pratt & Whitney Co., Hartford, Conn.
Scranton Tool & Supply Co., N.Y.
Scranton Supply & Mchry. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Severt's Sons L. F., Philadelphia, Pa.
Steppte, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ltd., Phila.
Toomey, Frank, Philadelphia, Pa.
Wetherill, Robert & Co., Chester, Pa.
Wilson, W. A., Rochester, N.Y.
Woodruff Mfg. Co., Hartford, Conn.

Machinery for Hardware Manufacture.

Adt, Jno. & Son, New Haven, Conn.

Machine Knives.

Coring Coes & Co., Worcester, Mass.
Loyd, John, 558-562 Water St., N.Y.

Machine Tools.—See machinery.**Machine Work.**

Fapping, J., 58th St., & 11th Ave., N.Y. City.

Machinists' Scales.

Coffin & Leighton, Syracuse, N.Y.
Starrett, L. S., Athol, Mass.

Machinists' Tools and Supplies.

King, J. M. & Co., Waterford, N.Y.
Sellers, Wm. & Co., Inc., Phila.

Mallets.

N. Y. Mallet & Handle Works, N.Y.
Mangles.

Johnson, S. C., Racine, Wis.

Measuring Tapes.

Lufkin Rule Co., Saginaw, Mich.

Meat Cutters.

Enterprise Mfg. Co., Philadelphia, Pa.

Metal.

Fearing, Wm. S., 100 Chambers, N.Y.
Hendrie Bros., 49 Cliff, N.Y.
Naylor & Co., 45 Wall, N.Y.

Metal Brokers.

American Metal Co., N.Y.

Metallurgists.

Britton, J. Blodgett, Phila.

Metal Saws.

Ehrhardt, Gustave & Sons, Pittsburgh, Q & C Co., Chicago, Ill.

Milling Machines.

Clin. Milling Mch. Co., Cincinnati, Ohio.
Ingersoll Milling Machine Co., Rockford, Ill.

Pedrick & Aver, Phila, Pa.

Mincing Knives.

Palmer Hdw. Mfg. Co., Troy, N.Y.

Miner Lamps.

Darby, Edw. & Sons Phila. Pa.
Leonard, E. E., Scranton, Pa.

Leonard, T. F., Scranton, Pa.

Mining Screens.

Harrington & King Perforating Co., Chicago, Ill.
Hendrie Mfg. Co., Ltd., Carbondale, Pa.

Howard & Morse, 45 Fulton, N.Y.

Mirrors.

Rice, C. F., Chicago, Ill.

Molding Sand.

Chicago Foundry Supply Co., Chicago, Ill.

Obermayer, S. Co., Cincinnati, O.

Faxon, J. W. & Co., Phila.

Motors, Water and Electric.

C. & C. Electric Motor Co., 402 and 404 Greenwich St., N.Y.

Dallett, Thos. H. & Co., Phila., Pa.
Thomson, Houston Motor Co., Boston, Mass.

Mall Machinery.

Pittsburgh Mfg. Co., Pittsburgh, Pa.

Nails (Cut) and Spikes.

Borden & Loyell, 70 West, N.Y.
Cumberland Nail & Iron Co., Phila.
Oxford Iron Co., 81 Washington St.,
Pottstown Iron Co., Pottstown, Pa.
Riverside Iron Wks., Wheeling, W. Va.

Nickel Platers' Supplies.

Eddy Electric Mfg. Co., Windsor, Conn.
Hanson & Van Winkle Co., Newark, N.J.

Zicker & Levert Chemical Company,
10 to 14 Grand St., N.Y.

Norway Shapes, Rollers of.

Bowlard, William & Harvey, Franklin,
Philadelphia, Pa.

Nut Machines.

Dunham Nut Mch. Co., Unionville, O.

Nuts, Bolts, &c., Makers of.

American Bolt Co., Lowell, Mass.

American Screw Co., Providence, R.I.

Blake & Johnson, Waterbury, Conn.

Waskeen, Wm. H. Co., Pawtucket, R.I.

Mt. Carmel Bolt Co., Mt. Carmel, Conn.

Port Chester Bolt and Nut Co.,

Chester, N.Y.

Russell, Burdsall & Ward, Port Chester,

Stearnsberg, J. H. & Son, Reading, Pa.

Wilson, F. Fred., Worcester, Mass.

Wm. H. Haskell Co., Pawtucket, R.I.

Oil Cups and Lubricators.

Sherwood Mfg. Co., Buffalo, N.Y.

Oil Stoves.

Glaizer Stove Co., Chelsea, Mich.

Ores.

Wister, Francis, Philadelphia, Pa.

Ox Shees.

Scranton Forging Co., Scranton, Pa.

Packing.

Billington, Jas. H. & Co., Phila., Pa.

Morrison, Robt., St. Louis, Mo.

N.Y. Belting & Packing Co., Ltd., N.Y.

Pandicks.

Ames Sword Co., Chicopee, Mass.

Prain, E. T., Lancaster, Pa.

Hillbrand & Philo, Phila., Pa.

Miller Lock Co., Philadelphia, Pa.

Paint.

Grainger Iron & Steel Roofing Co., Cleve-

land, O.

Dixon, Jos. Crucible Co., Jersey City, N.J.

Faint Burners.

Dangler Stove & Mfg. Co., Cleveland, O.

Patent Sollicitors.

Fitzgerald, S. C., Washington, D.C.

Bowson & Howson, Phila. & Washgtn.

Jenner, H. W. T., Washington, D.C.

stocking, E. B., Washington, D.C.

Perforated Metal.

Clinton Wire Cloth Co., Clinton, Mass.

Harrington & King Perforating Co.,

Chicago, Ill.

Hendrie Mfg. Co., Ltd., Carbondale, Pa.

Phosphor Bronze.

Phosphor Bronze Smelting Co., Lim-

ited, 512 Arch, Philadelphia.

Phosphor Tin.

Coleman Phosphorized Metal Co.,

Philadelphia, Pa.

Crosby Steam Gauge & Valve Co., Bos-

ton, Mass.

Halk & Naumann, 516 Pearl, N.Y.

Picks and Mattocks.

Plumb, Fayette K., Philadelphia, Pa.

Pig Iron.

Houston, C. B. & Co., Philadelphia, Pa.

Mann, Edwin R., Philadelphia, Pa.

Montour Iron & Steel Co., Danville, Pa.

Naylor & Co., 45 Wall, N.Y.

Pickands, Brown & Co., Chicago, Ill.

Pilling & Crane, Philadelphia, Pa.

Samuel, Frank, Philadelphia, Pa.

Pig Iron Storage.

Am. Pig Iron Storage Warrant Co., 44

Wall, N.Y.

Pile Drivers.

Vulcan Iron Wks., Chicago, Ill.

Pipe, Bent.

National Pipe Bending Co., New Haven

Pipe Cutting and Threading Ma-

chines.

Bignal & Keeler Mfg. Co., St. Louis, Mo.

Merrill Mfg. Co., Toledo, O.

Pancoast Henry & Co., Philadelphia,

Saunders' Sons, D., Yonkers, N.Y.

Pipe Grips.

Frentiss Vise Co., 44 Barclay, N.Y.

Fritts, Fitticut, &c., Makers of.

McNab & Hardin Mfg. Co., N.Y.

Pipe, Water and Gas.

Makers of.

Cumberland Nail & Iron Co., Phila., Pa.

Donaldson Iron Co., Emmaus, Pa.

Riverside Iron Works, Wheeling, W. Va.

Wood, R. D. & Co., Philadelphia, Pa.

Plane Irons, Manufacturers of.

Buck Bros., Millbury, Mass.

Planes, Manufacturers of.

Stanley Rule & Level Co., N.Y.

Plane Bending Rolls.

Schneekloth, H. A., 630 W. 28th St., N.Y.

Plate, Iron and Steel, Mfrs. of

Etna-Standard Iron & Steel Co.,

Bridgeport, U.

Rockwell Iron & Steel Co., Coatesville, Pa.

Mahoning Valley Iron Co., Youngs-

town, Ohio.

Moorhead-McLean Co., Pittsburgh, Pa.

Molvain & Sons, Reading, Pa.

Pottstown Iron Co., Pottstown, Pa.

Pottsville Iron & Steel Co., Pottsville, Pa.

Singer, Nimick & Co., Pittsburgh, Pa.

The Mahoning Valley Iron Co., Youngs-

town, O.

Wellman Iron & Steel Co., Thurlow, Pa.

Wood Alan Co., Philadelphia.

Plating, Nickel, Brass and

Silver.

Wilmet & Hobbs Mfg. Co., Bridgeport, Conn.

Plumbago.

Chicago Fdy. Supply Co., Chicago, Ill.

Pokers and Lifters.

Troy Nickel Works, Troy, N.Y.

Polishing Machines.

Watson & Stillman, 204 E. 43d, N.Y.

Polishing Wheel.

Watson & Stillman, 204 E. 43d, N.Y.

Post Hole Diggers.

Buckeye Mfg. Co., Union City, Ind.

Kohler, F. E. & Co., Canton, O.

Wister, L. & R. & Co., Philadelphia, Pa.

Poultry Nettings.

Barnum, E. T., Detroit, Mich.

Gilbert & Bennett Mfg. Co., 42 Cliff

St., N.Y.

Wire Cloth Co., Trenton, N.J.

"Silver Finish."

Tyler Wire Wks. Co., W. S., Cleveland,

O.

Wright & Colton Wire Cloth Co.,

Worcester, Mass.

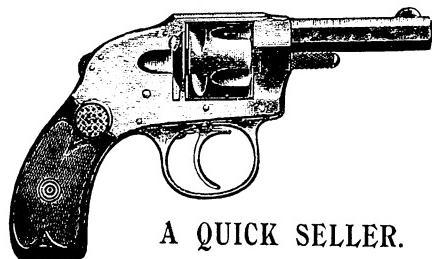
- Allenton Rolling Mill, Allentown, Pa.
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Patasc Rolling Mill Co., Paterson, N.J.
Pottsville Iron & Steel Co., Pottsville, Pa.
Roberts, A. & F. & Co., Phila., Pa.
The Phoenix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.
- Shears and Scissors.**
Aege Shear Co., Bridgeport, Conn.
Heinrichs, R. Sons Co., Newark, N.J.
- Sheet Iron and Steel, Manufacturers of.**
Aetna Standard Iron and Steel Co., Bridgeport, O.
Cambridge Iron & Steel Co., Cambridge, Ohio.
Chess Bros., Pittsburgh, Pa.
Mahoning Valley Iron Co., Livingston, Ohio.
Moorehead-McCleane Co., Pittsburgh,
Pierson & Co., 29 Broadway, N.Y.
Reilly, John W., Fort Hunter P.O., Pa.
Singer, Nimick & Co., Ltd., Pittsburgh,
Pa.
The Mahoning Valley Iron Co., Youngs-
town, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.
- Sheet Metal Work.**
Clark & Cowles, Plainville, Conn.
- Sheet Zinc.**
Mathiessen & Hegeler Zinc Co., La-
Salle, Ill.
- Shelf Brackets.**
Koch A. B. & Co., Peoria, Ill.
- Shovels, Spades and Scoops.**
Meyers, H. M. Co., Beaver Falls, Pa.
- Sinks.**
Douglas, W. & B., Middletown Conn.
- Skates, Ice.**
Dame, Stoddard & Kendall, Boston,
Mass.
Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.
- Skates, Roller.**
Henley, M. C., Richmond, Ind.
Union Hardware Co., Torrington, Conn.
Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.
- Smelting Works.**
Reeves, Paul S., 760 S. Broad, Phila.
- Speaking Tubes.**
Ostrander, W. R. & Co., 204 Fulton St., N.Y.
Wollensak, J. F., Chicago, Ill.
- Specialties, Pat. Articles.**
Konigslow, O., Cleveland, O.
- Speed Indicators.**
Church & Sleight, 109 Fulton St., N.Y.
- Spelter.**
Mathiessen & Hegeler Zinc Co., La-
Salle, Ill.
- Spoons and Forks.**
Holmes & Edwards Silver Co., Bridge-
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Rogers, The Wm. Mfg. Co., Hartford, Conn.
- Sporting Goods.**
Hartley & Graham, 313-315 B'way, N.Y.
- Springs.**
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Cary, Alanson, 240-242 W. 29th St., N.Y.
Dunbar Bros., Bristol, Conn.
Miller & Van Winkle, Brooklyn, N.Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred. Co., 315 to 319 E. 22d St., N.Y.
Roland, Wm. & Harvey, Phila., Pa.
Sabin Machine Co., Montpelier, Vt.
Washburn & Moen Mfg. Co., Worcester, Mass.
Wolf, R. H. & Co., Ltd., 118th St. and
Harlem River, N.Y.
- Spring Hinges.**
Bardsley, J., 149 & 151 Baxter St., N.Y.
Chicago Spring Butt Co., Chicago, Ill.
Pullman Safe Balance Co., Rochester, N.Y.
Stover Mfg. Co., Freeport, Ill.
Van Wagoner & Williams Co., 14 War-
ren St., N.Y.
- Spring Keys and Cotters.**
Whitman & Barnes Mfg. Co., Syracuse
N.Y.
- Sprinklers.**
Smith, Oliver A., Clarkston, Mich.
- Stamped Ware.**
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- Stamping Works.**
Cleveland Stamping & Tool Co., Cleve-
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- Staples.**
Cobb & Drew, Plymouth, Mass.
Titchener, E. H. & Co., Binghamton, N.Y.
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- Steam Hammers, &c., Makers of.**
Deneb & Eisenhardt, Philadelphia.
Dudgeon, Richard, 24 Columbia Street, N.Y.
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Webster Warren & Co., Camden, N.J.
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Goubert Mfg. Co., 32 Cortland St. N.Y.
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Carbon Steel Co., Pittsburgh, Pa.
Chester Steel Casting Co., Phila., Pa.
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Frankford Steel Co., Philadelphia.
Gautier Steel Department or Cambria
Iron Co., Johnstown, Pa.
Illinoian Steel Co., Chicago, Ill.
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Lukens Iron & Steel Co., Coatesville, Pa.
Moorhead-McCleane Co., Pittsburgh, Pa.
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Montour Iron & Steel Co., Danville, Pa.
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Miller Walls Co., 98 Reade, N.Y.
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Starrett, L. S., Athol, Mass.
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Lensing Wheelbarrow Co., Lansing
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- Tubes, Steel.**
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St., N.Y.
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England.
Shelby Steel Tube Co., Shelby, O.
- Tumbling Barrels.**
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- Turnbuckles.**
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Merrill Bros., Brooklyn, E.D.
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Tower & Lyon, 95 Chambers St., N.Y.
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- Wagon Jacks.**
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- Water Meters.**
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- Lansing Wheelbarrow Co., Lansing,**
Mich.
Sidney Steel Scraper Co., Sidney, O.
Sweatt Mfg. Co., Minneapolis, Minn.
Toledo Wheelbarrow Wks., Toledo, O.
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American Whip Co., Westfield, Mass.
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Samson Cordage Works, Boston, Mass.
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Gauthier Steel Department of Cambria
Iron Co., Johnstown, Pa.
Miller & Van Winkle, Brooklyn, N.Y.
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New Haven Wire Mfg. Co., New
Haven, Conn.
Salem Wire Nail Co., Salem, C.
Trenton Iron Co., Trenton, N.J.
Washburn & Moen Mfg. Co., Worcester
Mass.
Wetherell Bros., 98 Liberty St., F. Y.
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Harlem River, N.Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Wire Cloth.**
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 65 Fulton, N.Y.
Gilbert & Bennett Mfg. Co., 42 Cliff
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N. J. Wire Cloth Co., Trenton, N.J.
Reliance Wire & Iron Wks., Milwaukee
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Osawam Mills Co., Norwich, Conn.
Schoeller & Sons, Buffalo, N.Y.
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| Boardman, L. & Son..... | 67 | Clinton Wire Cloth Co. | 8 | Forehand Arms Co. | 83 | Huyett & Smith Mfg. Co. | S |
| Bogert, John L. | 62 | Cobb & Drew..... | 7 | Fraim, E. T. | 90 | Ideal Mfg. Co. | S |
| Boker, Hermann & Co. | 19 | Cockburn Barrow & Machine Co. | 99 | Frankford Steel Co. | 20 | Illinois Iron & Bolt Co. | S |
| Boone, W. C. Mfg. Co. | 29 | Coes, Loring & Co. | 97 | Frassé Co. | 96 | Illinois Pure Aluminum Co. | S |
| Booth, The Lloyd Co. | 28 | Coffin & Leighton..... | 46 | Frost Thrill Spring Co. | 92 | Illinois Steel Co. | S |
| Borden & Lovell..... | 9 | Colburn, A. M. | 51 | Fulton Iron & Engine Works. | 37&54 | Indiana Bicycle Co. | S |
| Borgner, Cyrus..... | 28 | Colby Wringer Co. | 89 | Fulton Steam Boiler Wks & Foundry | 31 | Indiana Wire Fence Co. | S |
| Boston Bridge Works..... | 16 | Coldwell Lawn Mower Co. | 100 | Gardner, Jas. & Son. | 28 | Ingersoll Milling Machin | S |
| Boston Gear Works..... | 36 | Collatt, Victor..... | 31 | Garrison, A., Foundry Co. | 25 | Jacobus, W. H. | S |
| Box, Alfred & Co. | 54 | Conroy, P. J. & Co. | 92 | Garry Iron & Steel Rfg. Co. | 9 | Jarecki Mfg. Co. | S |
| Boyce Rivet Co. | 110 | Consolidated Steel & Wire Co. | 15 | Garland Foundry Co. | 23 | Jeffrey Mfg. Co. | S |
| Bradlee & Co. | 17 | Continental Iron Works..... | 35 | Garvin Machine Co. | 50&62 | Jenkins Bros. | S |
| Bradley Fertilizer Co. | 44 | Corning, Edw. & Co. | 17 | Gautier Steel Department | 16 | Jenkins & Ling. | S |
| Brass Goods Mfg. Co. | 2 | Cotton, Barclay W. & Co. | 17 | Gaylor, F. L. Co. | 22 | Jehner, H. W. | S |
| Bridgeport Chain Co. | 77 | Cox, Justice, Jr. | 22 | Glazier Stove Co. | 21 | Jessop, Wm. | S |
| Bridgeport De-oxidized Bronze & Metal Co. | 3 | Covett & McKenzie Machine Co. | 47 | Goodell Co. | 21 | Johns, H. V. | S |
| Bridgeport Gun Implement Co. | 52 | Covett Mfg. Co. | 92 | Goodell, J. W. | 21 | Johnson. | S |
| Briggs, Marvin..... | 59 | Covett's Saddlery Works..... | 65 | Goubert Mfg. Co. | 49 | Johnson | S |
| Bristols' Mfg. Co. | 1 | Cox, Justice, Jr. | 22 | Gould & Eberhardt. | 2 | Johns | S |
| Britton, Horace E. | 68 | Crescent Horse Shoe & Iron Co. | 94 | Goulds Mfg. Co. | 22 | Johns | S |
| Britton, J. Blodgett..... | 31 | Crescent Phosphorized Metal Co. | 3 | Graham, John H. & Co. | 45 | Great Crossing Tack Co. | S |
| Broderick & Bascom Rope Co. | 6 | Crescent Steel Co. | 21 | Grand Crossing Tack Co. | 45 | Grand Rapids Hand Sc | S |
| Bronson Supply Co. | 84 | Croissant, M. | 89 | Grant Anti-Friction B | 58 | Grant Corundum W | S |
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| Brown Hoisting & Conveying Mch. Co. | 39 | Crosby, G. A. & Co. | 44 | Great Western Fin | 75 | Hosted by Google | S |
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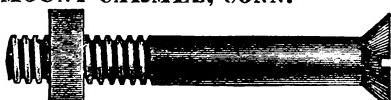
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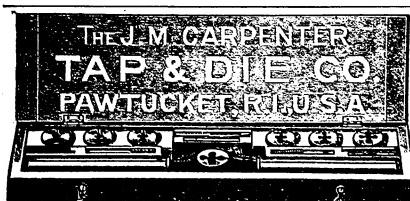
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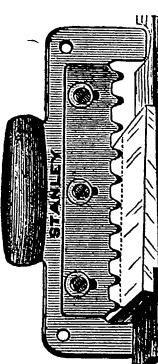
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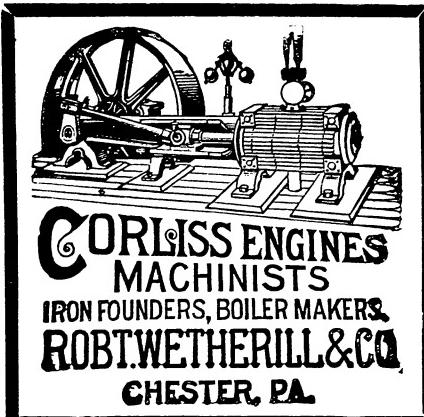
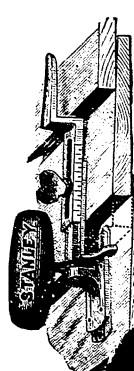
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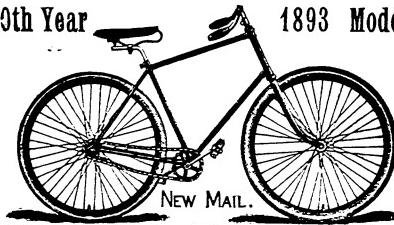


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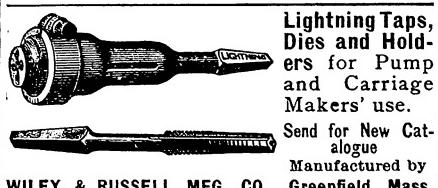
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THE IRON AGE

THURSDAY, AUGUST 17, 1893.

A Loud Telephone.

Many attempts have been made for some time past to construct a telephone which will really talk loud enough for a person in any part of a large room to hear and understand, but hitherto they have all failed with the exception of the "talking apparatus" recently devised by Mr. Graham of the Electric Wiring & Fittings Company, 2 Princes street, Westminster, London, and described in the *London Times*. He has succeeded not so much by an improvement on the existing telephones, although some modification of the apparatus has been effected, as by his method of arranging the circuit and bringing its resistance as low as possible. To this end the usual induction

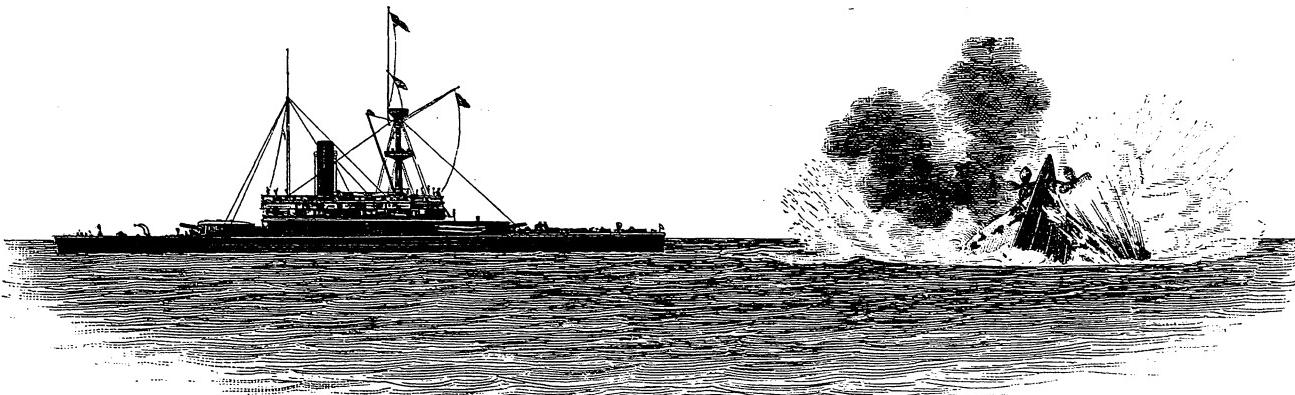
The user has, therefore, no need to listen carefully with one or two receivers held up to his head. All he has to do is speak into his transmitter and keep his ears open. The apparatus is therefore highly convenient, and allows the user freedom of action. It is chiefly intended for domestic service from one part to another of a house, office or workshop, and it will be especially useful on board ship, particularly in men-of-war, or in building yards, farms, newspaper offices and other large establishments.

The Weehawken tunnel of the West Shore Railroad (in New Jersey), which is 4200 feet in length, has been fitted with a novel block-signal system, described in the *Engineering Magazine*, consisting of a line of incandescent electric lamps about 300 feet apart and

Sinking of the "Victoria."

Our readers are familiar with the story of the sinking on June 22 last of Her Majesty's ship "Victoria" by collision with the "Camperdown," during the maneuvering of the Mediterranean fleet off Tripoli. It is not, therefore, necessary at the present time to repeat the account of the disaster.

It is now our privilege, through the kind courtesy of Capt. Cooper Kirton of Valletta, Malta, to present drawings made from photographs showing the sinking of the "Victoria" and the extent of the damage done to the bow of the "Camperdown." The first is from a photograph taken by Staff Surgeon Collot of Her Majesty's ship "Collingwood." It shows that the final plunge



From a Photograph by Staff Surgeon Collot of H. M. S. "Collingwood."

THE SINKING OF THE "VICTORIA."

coil is discarded, and the two instruments, transmitter and receiver, are directly connected in circuit with the line and the battery. The transmitter of A at one end of the line is connected to the receiver of B at the other end. As this arrangement only permits of A speaking to B, and not of B replying to A without a change of the connection and a substitution of apparatus, two separate lines are employed having a common return wire. On the second line the transmitter of B is directly connected to the receiver of A. The two correspondents can thus talk quite freely with each other, and as the receivers speak out so as to be heard in any part of a room conversation can be carried on by each person simply speaking to his transmitter. This apparatus is attached to flexible conductors and is held in the hand. To open a conversation it is sufficient to pick up the portable transmitter and press a button in its casing so as to establish the circuit, then speak into it. The receiver at the other end acts as its own call-bell by the loudness of its voice, and the response comes equally prompt and loud.

placed on a level with the eye of the engine driver. When the lamps are all alight it is an indication of safety; each train passing through extinguishes the lamps for a distance of 1100 feet in its rear, a result which is automatically effected by an electrically connected track circuit, whereby the lamps are kept under the continuous control of the train. The operators in the signal towers at each end of the tunnel can also extinguish the lights in any section of the tunnel if occasion requires. This system appears to embody a number of exceedingly valuable features, and, if successful in practice, cannot but increase the traffic capacity of a long tunnel largely beyond that which is possible by the methods of signaling heretofore in use.

Considerable activity is developing in the oil districts of Peru. English companies in the trade are reported to have acquired tank steamers for transporting the oil to China. It is believed that the whole of the western slope of the Andes, from Colombia down to the southern extremity of Chili, is rich in petroleum.

of the "Victoria" was made in an almost vertical direction, bow down, and that at the time she sank the "Camperdown" had backed away a distance about half her length. On Figs. 2 and 3 is indicated the position of the hole made in the "Victoria" by the bow of the "Camperdown." It will be observed that the opening is very different, as regards both size and location, from what the earlier dispatches led us to believe. It was then stated that the vessels approached each other on lines very much nearer being parallel and that the "Camperdown" struck the other at a point a little in advance of the turret and wedged in behind the side armor to a point nearly amidships. That these statements were erroneous is indicated by the drawings, the location and direction of the break having been ascertained from the officers of the "Camperdown" and the survivors of the "Victoria." On Fig. 2 is indicated the normal water line and also the capsizing water line. The other engravings are from photographs taken of the "Camperdown" after she had been docked; they indicate very clear

the extent of the damage done to her bow and the attempts that had been made by divers to close the opening by means of wedges and plates.

We quote as follows from a letter from Captain Kirton :

When the "Victoria" was first commissioned, one of our best fighting officers remarked that, had he to engage her, he would direct all his quick-firing guns at her unprotected ends, riddle the water line, when, as soon as the water flooded the protective deck, she would, with her low freeboard, inevitably capsize. This common sense view of her stability has been borne out by the facts, for with only half of her protective deck flooded the ship has capsized.

The general opinion is that the cause of the "Victoria's" loss was water-tight doors left open. This is entirely untrue, for the closing of the water-tight

even keel, when the boats of the fleet would have had plenty of time to have saved all hands, even to the last man, the gallant and lamented Admiral.

What actually occurred was as follows, and I am afraid quicker than I can write it : Directly "Camperdown" tore out her ram, "Victoria" took a list to starboard, the bow drooping. When she was started for the beach, being down by the head to commence with, *she began to bore forward and tip aft.* The protective deck was rushed full up, the end of main deck filled, the dip and list rapidly increased, until she, losing the stability of her full after water line, was floating upon what might be termed a raking transverse section, a position of utter instability, when over she went. The final plunge was, I may say, instantaneous.

So little idea had the people in the engine room of such a catastrophe, that

Upper part of stem crushed in, making an opening of about 15 feet long by 10 or 11 feet wide; the plates on port side were crumpled up like paper. This side suffered most, a large hole, 9 by 10 feet, being ripped out, commencing at break of stem and running aft just above protective deck. The frames showed the effects of the first blow and subsequent dragging clear and were twisted out of recognition. The ram was practically uninjured and could have rammed another vessel. It was all wrought work, no casting, and admirably strengthened by heavy horizontal ram plates. This ship will be thoroughly repaired and be afloat early in September.

The defect in bows and rams as at present constructed is that they are supposed to ram and rip up a vessel under water, the bow above not being affected. Instead of which the vessel

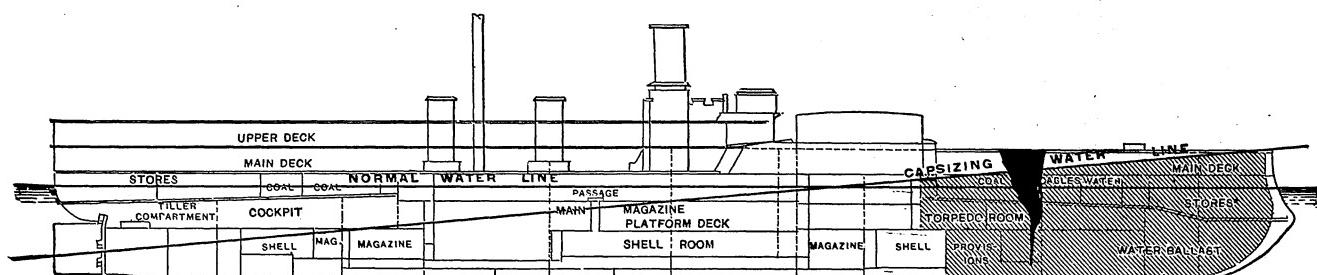


Fig. 2.—Vertical Longitudinal Section of the "Victoria."

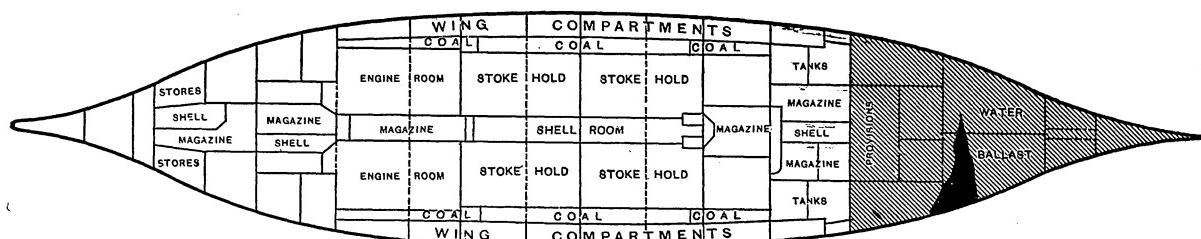


Fig. 3.—Sectional Plan of the "Victoria," Showing Hole Made by "Camperdown's" Bow.

THE SINKING OF THE "VICTORIA."

doors hurried the loss of the ship and lost us a large number of valuable lives. This particular statement I will proceed to prove.

When, after the collision, Admiral Tryon found that the engine rooms and stoke holds were intact, the water-tight doors closed, and over three fourths of his ship sound, he countermanded the boats of the fleet and headed the ship for the shore to beach her. He thought he had a ship under his feet, not a death trap, and his men were so impressed with the notion of unsinkability that many when warned refused to come on deck. The whole of the engine room staff on watch perished to a man, busy driving the ship to shore, and expecting to get there.

Now we will change the scene. We will suppose, that this vessel had not been in the state of magnificent discipline that she was, that the crew had rushed for the deck, leaving the watertight doors to take care of themselves. The consequences would have been, stoke holds and engine rooms flooded, the ship would have been stopped, would have commenced to sink on an

a few moments before she turned over the engineer sent an artificer on deck to know why they were letting go the anchors when the ship was steaming ahead, this letting go the anchors being the cables running out through the vessel's bottom, she having been cut right into to the chain locker.

The lesson to be learned from this appalling calamity is, that should another of these costly coffins be struck in the same manner the only way to get her beached would be to lock the helm amidships, tell off a vessel to make fast to each quarter, and tow her in stern first.

The "Camperdown's" ram struck "Victoria" nearly at right angles, say about 80°, and cut nearly into her middle line just as if she had been made of cheese. So much for ramming. The feeling aboard "Camperdown" was as if they were cutting into a soft sandbank; there was no jar felt, and the engines worked afterward as if nothing had happened.

The damage to "Camperdown" was stem 15 by 5 feet broken short off above ram and turned to port 18°.

built for ramming cuts into another so easily that she never stops until choked off by the crushing up of her own topsides. Nothing, not even the strongest ironclad that was ever built, could withstand ramming ; the thickest armor would be simply driven in.

The damage to "Camperdown" shows that the stem above the ram ought to be worked thicker and deeper and the plating made thicker, so that the stem would take the blow, and the edge of plating be covered. The stem plating of "Camperdown" was simply sheared off for want of this precaution. The stem and frames should also be backed by heavy stringers capable of wedging into any ordinary topside without much damage to the rammer.

The Chicago, Rock Island & Pacific Railway Company announce that they have extended the "Rock Island route" to Fort Worth, Texas, and are now in a position to transport freight of all kinds to and from all points in Texas. Arrangements have been perfected for first class freight service.

A New Chicago Cable Line.

The cable was started recently on Blue Island avenue, Chicago. The arrangement of the new Blue Island line is as follows: One cable rope runs from the power house at Twelfth street and

street on Twelfth street east to Halsted, south on Halsted to O'Neil, back north on Halsted to Blue Island avenue, back on Halsted to Twelfth street and to the power house through the conduit. All these cables will be run from the power house at Blue Island avenue and Twelfth street. The down-town loop through

used for steaming. Walker differential drums are installed, together with Walker friction clutches, which will allow any one of the cables to be stopped without interfering with the speed of the engines. There is a spare set of drums, so that in case of accident to any of the three cables the extra one

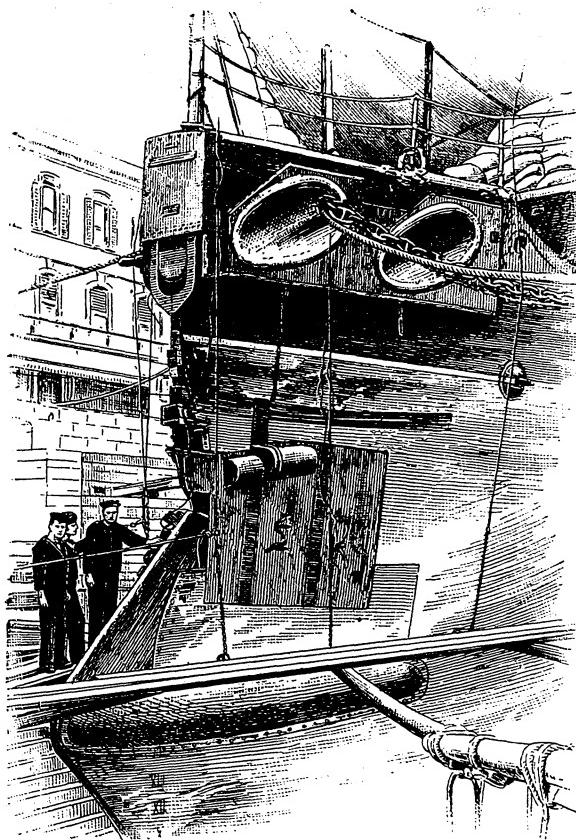


Fig. 4.—"Camperdown's" Bow, Showing Plates Put on by Divers.

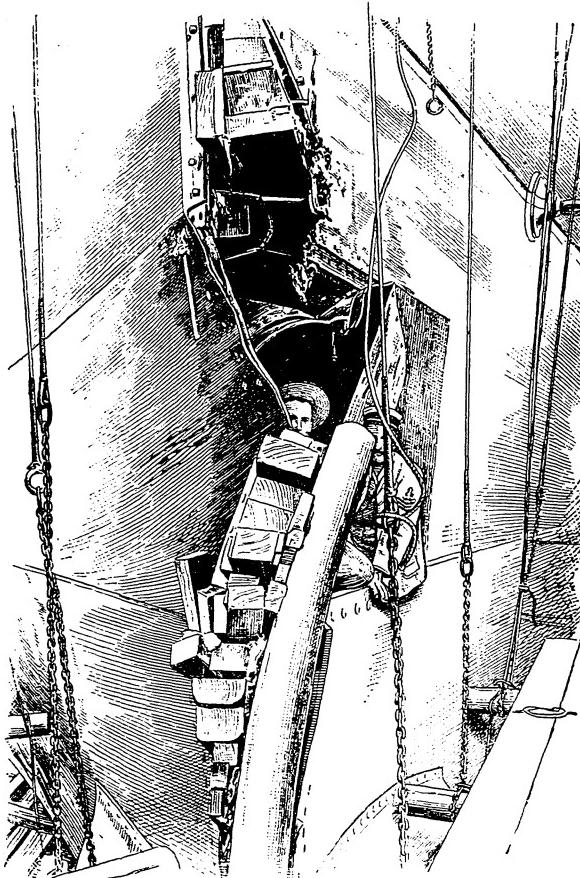


Fig. 5.—Front View of "Camperdown's" Bow with Wedges to Partly Fill the Hole.

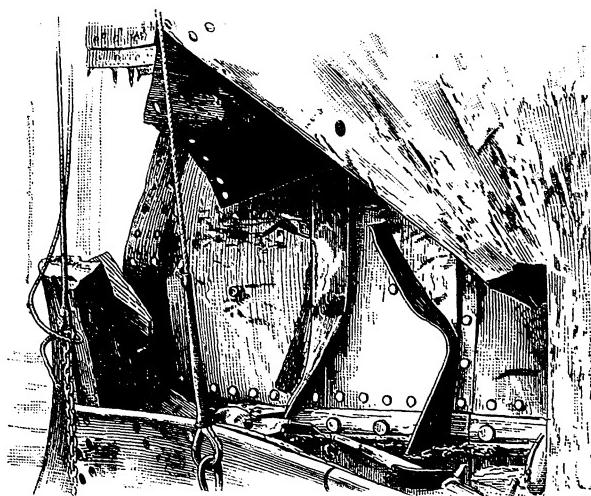


Fig. 6.—"Camperdown's" Bow with Plates Removed.

THE SINKING OF THE "VICTORIA."

Blue Island avenue out Blue Island to Western avenue; another runs from this power house up Blue Island avenue to Halsted and Van Buren streets and thence to the power house at Van Buren and Jefferson streets. There is also what is called a dead cable that runs in conduit or tunnel from the power house at Blue Island avenue and Twelfth

the Van Buren street tunnel will be run from the power house at Van Buren and Jefferson streets.

The power house at Blue Island avenue and Twelfth street, which will furnish such an enormous power, is equipped with two 1000 horse-power Altis Corliss engines, two batteries of boilers, four in each, in which oil is

may replace it. The plant is provided with two 25 ton cranes with travelers, so that in case of accident or for repair purposes any piece of the ponderous machinery may be readily lifted out of place.

The South Blue Island avenue cable, which runs from this power house to Western avenue, is 27,000 feet in length; that north on Blue Island avenue 12,000 feet. The basement of the power house, which contains the tension drums for stretching the cables, has also a complete electric light plant, by which the building is lighted. Both power houses were built by the Pennsylvania Iron Works of Philadelphia. The Halsted street lines will soon be in use. For the present, and until the down-town loop is put in, trailers will be detached from the grips at Van Buren and Jefferson streets and will make the down-town trip by horse-power by way of Van Buren, Dearborn, Adams, Franklin and Van Buren streets, back to connect with the cable at Van Buren and Jefferson streets.

According to a recent statistician the United States produces 2220 pounds of grain to each inhabitant; Denmark, 2205; Canada, 1500; Russia, 1200; Roumania, 1150; Spain, 1100; France, 990; Sweden, 980; Argentine Republic, 750; Australia, 760; Germany, 700; Belgium, 600; Portugal, 550; Ireland, 500; Scotland, 490; England, 360.

Rod-Rolling Mills and their Development in America *

BY FRED. H. DANIELS, WORCESTER, MASS.

(Continued from page 252, August 10.)

We now come to that period in the history of rod rolling in the United States where the development has been so rapid and the production so increased as to astonish even the most sanguine of our rod rollers, and I am sure it will surprise our friends from abroad when they learn what is now accomplished.

There are practically only two systems in use in America at the present time : 1, the combined back-and-forth and looping system, requiring expert roughers and catchers for all the oval passes and repeaters for square passes; and, 2, the continuous system, which is almost wholly automatic throughout its operation—that is, dispenses largely with hand labor. By the first system is produced two-thirds of all the rods rolled in this country, and the

45,000 tons. Other mills were erected in the following order:

| | Year. | Tons. |
|--|-------|-------------|
| Cleveland Rolling Mill Company, first mill..... | 1882 | 45,000 |
| Hartman Steel Company..... | 1883 | 60,000 |
| Oliver & Roberts Wire Company..... | 1884 | 60,000 |
| Braddock Wire Company..... | 1885 | 45,000 |
| American Wire Company..... | 1886 | 60,000 |
| Joliet Steel Company..... | 1889 | 50,000 |
| American Wire Nail Company..... | 1890 | 45,000 |
| Newcastle Wire Nail Company..... | 1891 | 45,000 |
| Iowa Barb Fence Company..... | 1891 | 45,000 |
| H. P. Nail Company..... | 1891 | 45,000 |
| Kilmer Mfg. Company..... | 1892 | 30,000 |
| Cleveland Rolling Mill Company, second rod mill..... | 1892 | 80,000 |
| Pittsburgh Wire Company..... | 1892 | 40,000 |
| Total annual capacity..... | | 610,000 |
| | | Pounds. |
| Maximum output in one turn, Beaver Falls, No. 3 rods..... | | 349,460 |
| Maximum output in one turn, Joliet, No. 4 rods..... | | 342,620 |
| Largest single turn, No. 5, Beaver Falls..... | | 322,000 |
| Largest single turn, No. 5, Joliet..... | | 314,000 |
| | | Gross tons. |
| Largest year's work, Joliet, 1891..... | | 56,769 |
| Maximum output, No. 3, in double turn, ten hours each, Beaver Falls. 277 | | |

ity in 1892, Ohio second, Massachusetts third, and Illinois fourth. Nearly two thirds of this entire output of wire rods was consumed in the manufacture of barbed wire fencing and wire nails.

Probably no one in the United States has overcome more obstacles in rod rolling than William Garrett. Commencing with an output of 70,000 pounds in ten hours, the Garrett mill now produces as high as 349,000 in the same time. This has been brought about by being constantly on the alert to increase the output every time the possibility of producing this result presented itself. Shortly after adopting the power reel, Mr. Garrett conceived the idea of finishing two rods simultaneously and reeling them on independent power reels. This innovation was a complete success, and to-day it is the common practice to finish as many as five at a time, the mill, of course, being supplied with five or six reels for coiling the product. In addition to the increase in product by multiple rolling, Mr. Garrett quickly perceived the advantages of the McCallip repeater for conducting the first end of

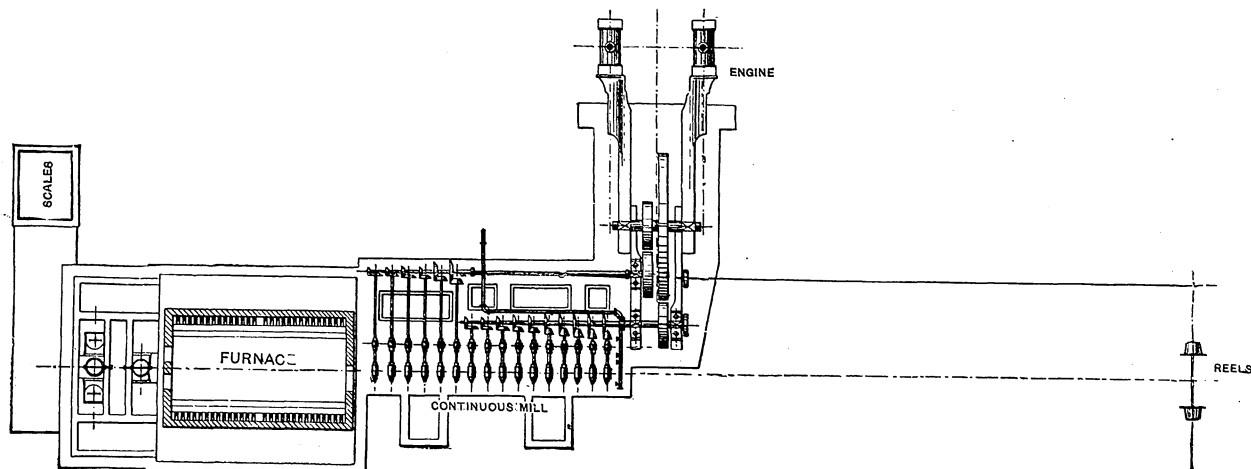


Fig. 12.—The C. H. Morgan and F. H. Daniels Continuous Rod Mill.

ROD-ROLLING MILLS AND THEIR DEVELOPMENT IN AMERICA.

credit for its development to the position of largest producer of wire rods belongs to William Garrett. The credit of the introduction into America of the second system or continuous method of rolling belongs to the late Ichabod Washburn. The credit for its development afterward must be divided among the engineering corps of the Washburn & Moen Mfg. Company, Chas. H. Morgan and the writer having taken a somewhat prominent part in such development. Of course, there are mills which vary in a slight degree from the two systems, but in all cases the difference consists chiefly in combining the parts of the rolling mill plant, so that they are arranged to accomplish the same results by substantially the same mode of operation.

The Garrett rod mills, Fig. 13, were introduced very rapidly as soon as the successes attained by Mr. Garrett were made public. The first mill was erected in 1882 by the Cleveland Rolling Mill Company, the annual capacity being

Maximum output, No. 4, in double turn, ten hours each, Joliet..... 307
Maximum output, No. 5 and coarser, in one month, Beaver Falls..... 5,724
Maximum output, No. 5 and coarser, in one month, Joliet..... 5,462

The rod-rolling capacity of the United States I estimate as follows:

| | Gross tons. |
|--|-------------|
| Garrett system, running at maximum capacity..... | 650,000 |
| Continuous system, running at maximum capacity..... | 250,000 |
| Other forms of mills, running at maximum capacity..... | 100,000 |
| Total..... | 1,000,000 |

Although the above figures are undoubtedly a conservative estimate of the annual capacity of the rod rolling mills in the United States, we have not been able, up to date, to actually obtain this output, on account of the inability to continuously run rod-rolling mills throughout the year. Repairs and other stoppages largely curtail the maximum output. Mr. Swank of the American Iron and Steel Association, in his last report, places the total production of wire rods for the year 1892 at 627,829 gross tons, against 536,607 tons in 1891, an increase of 91,222 tons. Pennsylvania made the largest quan-

the square section from one groove to the next, thereby dispensing with about one-half of the catchers, reducing the cost of rolling, and increasing the efficiency and output of the mill, also permitting an increase in weight of billet to 150 pounds. The writer was well acquainted with Mr. McCallip and saw the repeater in operation at Columbus, Ohio, in a mill of which Mr. McCallip had charge, and Mr. McCallip deserves the credit of having invented the device which has had more to do with the development of the looping system of rod rolling than any other. There have been several devices suggested by others to accomplish this result, but to-day the McCallip repeater is the one in general use in the United States on all looping mills. McCallip's patent was taken out October 23, 1877.

Automatic reeling was used experimentally at the works of the Washburn & Moen Mfg. Company as early as 1879, and put in successful and constant operation in 1886, and is now exclusively used in all wire rod rolling mills in this country. As the maximum output of all rod-rolling mills depends, of course, upon the capacity of the reeling apparatus, the old-style reeling appara-

* Presented at the Chicago meeting (August, 1893) of the American Society of Mechanical Engineers, and forming part of Volume XIV of the *Transactions*.

tus—that is, the power reel and the large iron floor—will now be explained more fully by the following example: In 1878 the wire rods rolled by the Washburn & Moen Mfg. Company were the product of a continuous mill—that is, a rolling mill made up of a number of pairs of rolls, so arranged that the hot billet passed from the first to the second, from the second to the third, and so on. As the billet was reduced in cross sectional area by each pair, it was necessary to give the second pair a

an attendant set the reel in motion and rapidly quickened its speed until the loops of the hot iron rod were taken off the iron floor, and the hot rod extended in a long sag from the reel to the final pair of rolls, when the speed of the reel was carefully regulated to take the rod about as fast as it was delivered by the final pair of rolls. This reel can be well named a traction reel; that is, it pulled the hot rod first from the iron floor and then kept it under strain between itself and the final pair of rolls. In this and

limits of speed of the final pair of rolls, and the former limitations as to the number of rods have disappeared; for the iron floor and traction reels are abolished, and the automatic reels can be set so near the final pair of rolls that the hot rod passes directly into the reel while the reel is revolving rapidly.

(To be continued.)

WORLD'S FAIR NOTES.

The Ferracute Machine Company,

of Bridgeton, N. J., have a large exhibit of their presses, spinning lathes, and other sheet-metal machinery, as well as a number of dies, at the Columbian Exposition. They are located in the center of Machinery Hall Annex, columns I, J, 42. Their space is about 30 feet square, and they have a small auxiliary space on the center aisle also. They show two large drawing presses, a large double-crank press, three of their new style of C presses, two punching presses and a number of foot, screw and drop presses, two spinning lathes, benders, threaders, crimpers, &c., in operation daily. They are manufacturing a number of small goods in aluminum, brass and tin, thus illustrating the working of the presses to the best advantage. All of these presses are from their latest designs and with a number of improvements in the way of new clutches and adjustments, convenient clamping arrangement for setting dies, &c. Their exhibit is driven from a line of shafting of their own, and an independent upright engine gives them their motive power.

There are a number of dies in operation which are of special interest to the sheet-metal trade, in the manufacture of cups, plates, pans and small fancy goods. They also show one of their embossing presses and one of their coining presses, which are adapted for medals, badges and fancy work of various kinds. They also show on their wall space a great variety of articles in sheet metals which have been manufactured in their presses and dies. Among these may be specially noted sheet metal shingles in numerous patterns and shapes, a variety of vessels showing deep drawing and stamping, cans of many sizes, fancy metal boxes, sheet metal ornaments, &c. Towering above the exhibit is a revolving vertical shaft, on which are two great signs at a right angle with each other, bearing the name of the company and attracting attention to the display.

They have a neat office fitted up in connection with their space, and will be glad to welcome any one in the metal-working trades at any time. Mr. Hoffman, foreman of the press department, is in charge of their exhibit, and Mr. Stevenson is in charge of the dies, running presses and manufacturing the sheet metal goods. Their whole exhibit is a very interesting one.

They are about to issue a new catalogue describing their new lines of presses.

The Peck, Stow & Wilcox Company,

27 Chambers street, New York, whose factories are at Southington, Plantsville and East Berlin, Conn., and at Cleveland, Ohio, make a fine exhibit of tinsmiths' machines and tools in Machinery Hall, column A 51. The machinery shown comprises an 8-foot square shear for foot power, a 31-inch square shear for foot power with auto-

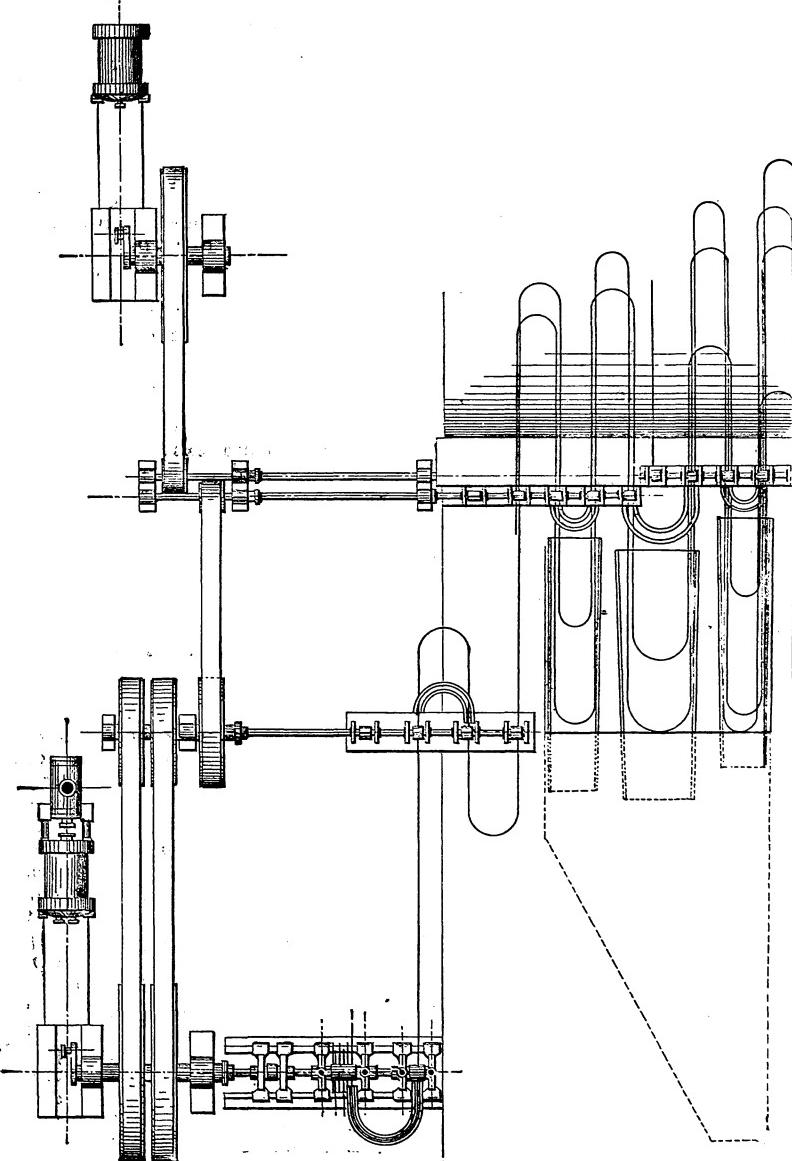


Fig. 13.—The William Garrett Rod Mill.

ROD-ROLLING MILLS AND THEIR DEVELOPMENT IN AMERICA.

surface speed much greater than the first pair; and the third pair a still greater surface speed; the final pair requiring a surface speed of almost 30 feet per second—faster than a mile in three minutes.

The first end of the hot wire rod issued from the final pair of rolls over a large floor of iron, and the wire rod, as it issued from the rolls, was flattered in loops over one side of the iron floor, when a nimble attendant ran upon the floor, seized the first end with his tongs and thrust it through a hole in a screen of plate iron and between the fingers of a reel. As soon as the first end of a hot wire rod was connected with the reel,

all other traction reels, the speed of the reel must be regulated with great nicety during the whole operation. With this system of rolling, 600 revolutions was the maximum speed in continuous mills, rolling one rod, and 450 revolutions on the looping system, rolling two rods.

In order to increase the output the speed of the final pair must be increased or the number of rods rolled at the same time must be increased. The first is practically impossible, because the traction reel is not adapted for any greater speed, and the second is objectionable because it requires a traction reel with its large floor for each rod. With the automatic reel the former

matic clamp and double edge blades, a machine for cutting and folding tin or sheet metal for map binding, a 3-inch roll former with slip roll and duplex compensating gearing, a 2 inch slip roll former with compensating gearing and quick roll adjustment, a beader, 30-inch groover, rim machine, stake holder with stakes, incased machines, Columbian machines, 20-inch folder with quick-moving gauge, 30-inch folder with square box attachment, bench scroll or slitting shear, right and left hand ratchet drill, and flat and round nose and side cutting pliers. They also show the Little Giant and Triumph meat cutters. The small tools are shown attached to benches of hard wood, in position for operating. A large showcase contains fine specimens of small tools of the company's manufacture, comprising ratchet bit braces, pipe pliers in a variety of sizes, an assortment of pincers, auger bits, draw knives, bevel-sided chisels, wire pliers, compasses in great variety, hatchets, tinner's and other hammers, and Robin-son's wrenches in all sizes.

Swarts Iron & Metal Company,

551 to 557 State street, Chicago, make an interesting exhibit in the southwest corner of the gallery of the Mines and Mining Building. It consists of a showcase of samples of scrap iron and steel and other metals, representing the manner in which they are classified for the market. The samples are arranged in trays and are appropriately labeled, as follows: Mixed steel scrap, No. 1 small mill scrap, No. 1 forge scrap, stove plate scrap, No. 1 cast scrap, borings, railroad spring steel, turnings, mixed scrap as brought to the yard from the country, scrap lead, copper wire, battery copper, battery zinc, scrap zinc, heavy brass, copper dross and brass borings. In connection with this collection of raw material samples are shown of the iron product, consisting of muck bar and round and flat bar iron. In a vertical case they also show, appropriately labeled, samples of No. 1 small mill scrap, horseshoes, files and tool steel, borings, turnings, burnt cast scrap, old steel rails, &c. Not far from this exhibit stands an oak pedestal supporting a glass case in which is shown the

First Casting Made in America,

the small iron pot, cast at Lynn, Mass., in 1642, at the Saucus Iron Works, and presented to the city of Lynn by John E. Hudson, a descendant of Thomas Hudson, the owner of the site of the iron works, to whom this first casting was given. A photograph of the site of the foundry is also shown. Another very interesting exhibit in this part of the gallery is found on the wall. It is a display of tubes manufactured at the

Ellwood Ivins Tube Works,

528 North Tenth street, Philadelphia. These are seamless tubes, made of various kinds of metal, such as steel, brass, copper, German silver, aluminum, aluminum bronze, &c. The sizes shown run from 2 inches down to almost the diameter of a hair; but the statement is made that larger sizes can be furnished as desired, and of any commercial metals. All are made without solder, seam or weld. A peculiarity of the process is that the walls of the tube can be made of any thickness desired, so that the tubes will be heavy with small calibers or very light with merely walls of shell. They are guaranteed true and accurate, even the smallest sizes being made accurate to the thousandth

of an inch. The exhibit is a remarkable one and worthy of a more conspicuous position. No description of the process employed is given in connection with the samples shown.

The Kilbourne & Jacobs Mfg. Company

of Columbus, Ohio, have two exhibits, one being composed of trucks, wheelbarrows, &c., in Transportation Building, section A-12, and the other being devoted to wrought steel sinks, in the Manufacturers Building, section N, block 4. The exhibit in the Transportation Building consists of a large variety of warehouse and store trucks, barrel trucks, cotton trucks, and baggage trucks, to meet any requirement, the warehouse and store trucks being of different patterns to conform to the peculiarities of the trade in different cities; box trucks, consisting of a heavy frame on casters, for moving boxes and other bulky freight; the Little Giant truck, for handling light packages; stove carriers, which can either be used as trucks or for carrying stoves from one location to another; book and paper house trucks, wire-nail wagons, bar-iron trucks, sheet-metal trucks, machine-shop wagons, and a great number of special trucks for a variety of purposes. There are also hand carts, with and without springs, in numerous styles. The Boss solid steel drag scraper and the Columbus steel ditching scraper are among other products displayed, as well as wheel scrapers. Very heavy contractors' plows are shown, while the line of wheelbarrows exhibited comprises an unusual variety of these useful articles, adapted to about every form of work to which a wheelbarrow can be put, including charging barrows for blast furnaces. The exhibit in the Manufacturers Building shows the Columbus wrought-steel sink, enameled in different colors. It is also furnished galvanized or painted. These sinks are each made from one plate of steel, pressed into the proper shape, and are thus not only seamless but are very light, strong and durable, as they will not break in shipping or handling, nor from exposure to sudden heat or cold. The bowl and projecting thimble are stamped in one piece from the same plate, enabling the strainer and pipe to be satisfactorily attached. The company have their own coupling to connect the pipe to the sink, which is not only simple but is stated to be thoroughly reliable, avoiding all leakage.

Randolph & Clowes

of Waterbury, Conn., having branch offices in New York, Philadelphia, Boston, Cincinnati and Chicago, have two exhibits. One in Manufacturers Building, section N-62, is devoted to Brown & Bros. patent seamless drawn copper range boilers, of which this firm are sole manufacturers. These boilers are shown mounted on boiler stands, and are beautifully finished, being polished until they look like gold. One of the boilers has been cut in two, vertically, to show the interior construction as well as the uniformity in thickness of the shell. A spiral rib runs round the interior of these boilers their entire length, stiffening the shells and supporting them so that the firm guarantee that they will not collapse. Some of the boilers are nickel plated. The exhibit is a fine one, rendered more attractive by the well-finished hard wood floor and the elegant brass railing inclosing the space. The exhibit in the Mines and Mining Building is in the

east central section, and is one of the most unique and conspicuous exhibits in the building. They have built a pavilion some 25 feet square and 16 feet high, with walls composed wholly of seamless tubing of different diameters running from large tubes on the corners to small ones in the centers. These tubes are of copper, bronze and brass, arranged regularly in that order, making an alternation of colors. On the top of each corner is a dynamite shell, such as were made for the "Vesuvius," dynamite cruiser. Ornamental panels of brazed tubing are arranged in various places about the upper part of the pavilion, also highly polished specimens of copper bottoms, sections of distillers' coils for worms, &c., attached to sheets of planished copper. Inside the pavilion is a rack composed of R. & C.'s patent beer-cooling tubes, which supports a number of spun brass and copper kettles of different sizes. On a large table extending along one side of the inclosure are shown a great variety of the firm's products in sheet brass, German silver, sheet copper, &c. Among the goods shown are brass moldings of new design, and specimens of the new R. & C. brass plumbers' ferrules, made by an entirely new process, to take the place of the old cast ferrule and thus save plumbers much time and labor. They are made perfectly smooth, exact to size, and are carefully tested by hydraulic pressure to 500 pounds to the square inch. Some are plain and others have the ends tinned ready for instant use. The space about the pavilion is inclosed by brass chains attached to posts composed of dynamite shells set on end. The brass signs used on these exhibits are unusually wide specimens of sign brass, being 42 inches wide.

The Sellers Gun Furnace.—A Washington despatch of August 10 reports that the parts of the new furnace for assembling heavy ordnance have reached the Washington gun shops from Philadelphia, and will soon be placed in position. The furnace is the invention of William Sellers, the machinery builder, and is intended to prevent the sticking of tube and jacket of great guns while in process of assembling. The naval ordnance officers are awaiting the results of the proposed system with great interest, as it is destined to change the method of assembling. Instead of the jacket being expanded in a pit and then placed over the tube, the tube is inserted in the furnace in a horizontal position, and while the intense heat is applied the tube is forced to its seat. A device is affixed to the tube so that a stream of cold water is applied to the tube as it is being shoved into the jacket. By this system the jacket is not free from the heat of expansion until the tube has been correctly inserted and the possibility of the jacket contracting upon the tube is therefore lessened. The first gun to be assembled by the Sellers furnace will be the nickel-steel gun, the parts of which are ready at the Washington ordnance shops. This is the first nickel-steel weapon, and is intended as an experimental gun to be used at the Indian Head proving ground in testing powder. The gun is of 8-inch calibre. It will be assembled as soon as the pyrometers, used for measuring the temperature in the furnace, are received.

Grain exports from Montreal this season have far surpassed in volume the shipments of any previous year.

Blowing Engines.*

BY JULIAN KENNEDY, PITTSBURGH, PA.

The different types of blowing engines in use are so numerous that it would not be practicable to consider them all in this paper. I shall therefore only take up briefly a few well-known types.

The style of blowing engine most largely used in this country is the vertical engine with air cylinder above, cross head between steam and air cylinders and two fly wheels, each having a wrist pin in its hub or in one arm. This kind of engine can be built cheaply, takes up little room and is very accessible. Its disadvantages are that the cross

Another type of engine which has given good satisfaction is the vertical double engine, having air cylinders above, steam cylinders below them, and cranks at bottom, the engines being coupled to cranks on the ends of the shaft, placed at right angles to each other, the shaft carrying the fly wheel at its center. Engines of this type, except that they are arranged horizontally, are also used to a considerable extent. These engines avoid the disadvantage of having wrist pins in the fly wheels, and also dispense with the long cross head with its attendant disadvantages. They give a very uniform pressure of blast, and are very convenient for starting. The vertical engines of this type, as compared with the horizontal, take up less room, and the wear on cylinders due to carrying

double machine is worthy of consideration.

The double-coupled type of engine is also particularly adapted to compounding. As most blowing engines run under a comparatively constant load, and as the increasing use of water-tube boilers in iron and steel works renders it easy to maintain high steam pressures, I have no doubt that before long compound blowing engines will be adopted in a large majority of the new plants built.

In looking over the different kinds of blowing engines, we cannot fail to be impressed with the fact that in nearly every case the air valves are the weak point in the machine. In the great majority of cases the maximum speed of the engine is about half what it could be if the air valves could work fast

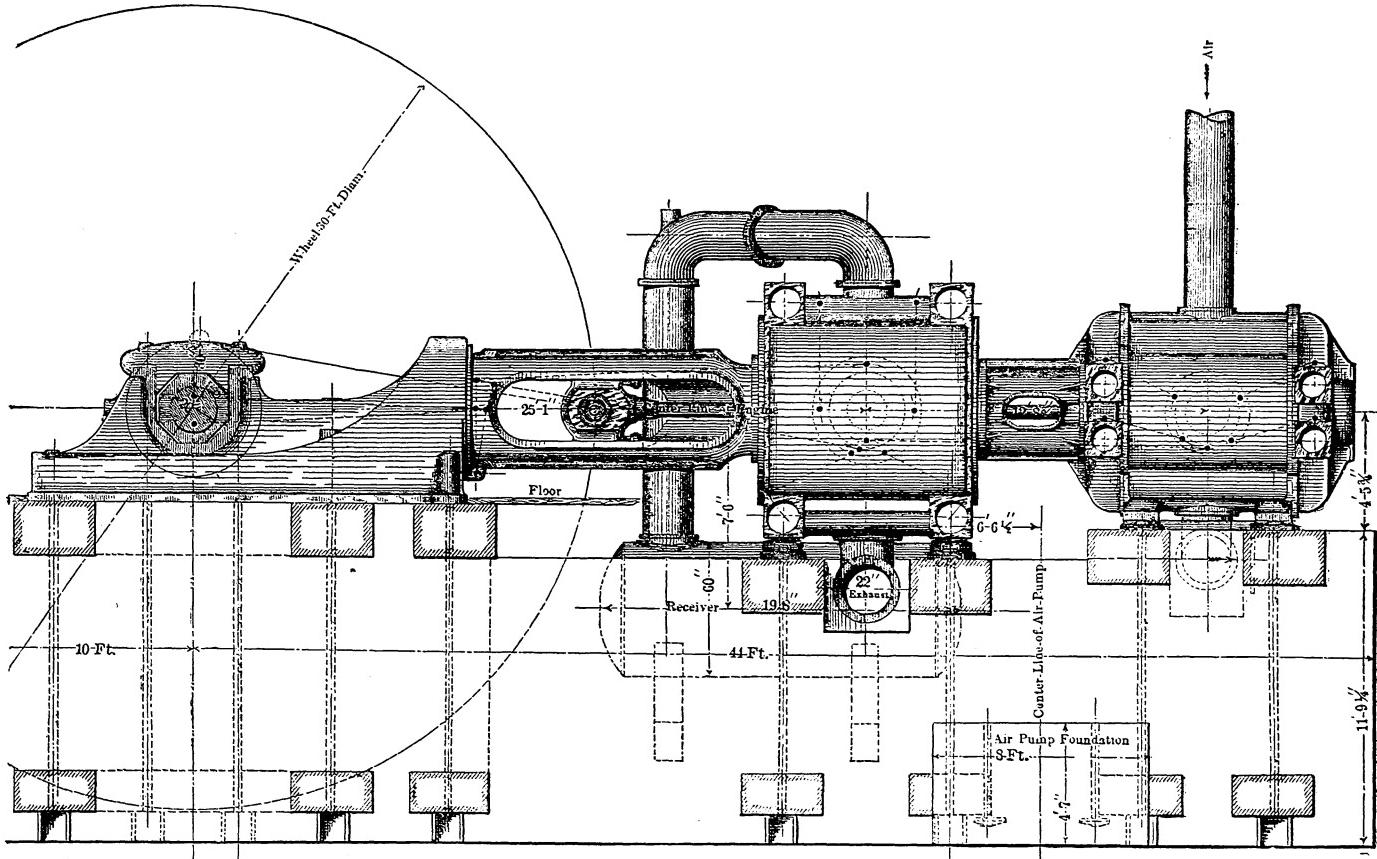


Fig. 1.—Elevation.

BESSEMER BLOWING ENGINE, OHIO STEEL COMPANY.

head is liable to break, and that putting the wrist pins in the wheels tends to set up vibrations in them. It is likely that on the whole this type of engine will continue to be built quite extensively.

The same general arrangement has also been used to some extent, but not widely, in horizontal engines. The Bethlehem Iron Company have some very fine blowing engines of this type, except that they are compound, having the one steam cylinder replaced by two, side by side. These engines are noticeable not only for the very excellent workmanship on them, but also on account of the weight of the pistons being carried by steam pressure applied in chambers in the lower side, the steam being supplied to these chambers through the hollow piston rods. This arrangement, I believe, has always worked well.

* Presented at the World's Engineering Congress, Chicago, before the American Institute of Mining Engineers.

the weight of pistons is avoided. On the other hand, the machine is very high, and there is considerable vibration. The horizontal machine avoids this, is very accessible and is cheaper to construct. With proper attention there seems to be no serious trouble with wearing of cylinders, so that wherever ground room is ample the horizontal double-coupled engine seems to be very suitable. The principal objection urged against this style of engine is that in the event of a break a large machine is disabled, whereas, if two single engines are used, one can keep the works going while the other is being repaired. This is doubtless correct, but I think that too much weight is often given to this consideration. With machines strongly proportioned and carefully built, there should be very few stops; on the other hand, in the case of Bessemer engines, which are starting and stopping at short intervals, the fact that one attendant can handle the

enough. To remedy this fault several plans have been resorted to. In some cases fairly good results have been obtained by making the valves very light, giving them but little lift, and arranging them so that they shall seat by gravity. In some cases valves of this kind are so constructed that the air in entering the cylinder is compelled to pass through a large number of very small openings. This is a very objectionable arrangement, not only on account of the increased amount of friction, but because the air in passing over the metal grids in thin streams will absorb quite a considerable amount of heat from the heads, which, in the case of engines working against high blast pressures, are made very hot by the heat of compression.

This heating of the incoming air expands it and proportionally reduces the weight of air entering the cylinder at each stroke. I have observed this in the case of an engine which was so con-

structed as to cause the air to travel about 3 inches over the hot metal in thin films about $\frac{1}{6}$ inch thick. Along-side of it was another engine of the same size and make, except that valves were used which allowed the air to pass over about 1 inch of metal, the openings being of such size that each stream of air was 2 inches in thickness. Careful and repeated tests of these engines, when both were in good order, showed that, while the indicator diagrams were practically the same, the one with the large valves would burn about 10 per cent. more coke in the furnace: a result which could only be explained on the supposition that, in the case of the engine with small air openings, the incoming air, in passing through the small and tortuous passages in the

building, and to discharge it below the cylinders. The inlet valve is a plain rotary valve held to its seat by the blast pressure, which is admitted to the back of the valve by a port from the discharge chamber, and is driven from a wrist plate. The outlet valve, as will be noticed, is a triple-ported valve, which is closed at the proper time by the wrist plate.

The connection between wrist plate and valve is made by a telescopic extensible rod, which pushes the valve shut, but permits the wrist plate to reverse its motion without pulling the valve open. To the valve lever is attached a vacuum pot, which tends to pull the valve open. When the valve has been closed it is gripped by the receiver pressure acting on the back,

set in pockets at end of the valve. It will be seen from the drawings that these blocks have a clearance of $\frac{1}{8}$ inch at the bottom, so that if for any cause the valve should be prevented from opening at the proper time it will be only forced back from the seat, the opening of $\frac{1}{8}$ inch being sufficient to allow the engine to run at full speed with wrist plate and vacuum pot disconnected from outlet valves. This valve gear is extremely simple, and practical tests have shown it to work admirably. This engine is intended to run at a speed of 60 turns per minute if necessary.

In conclusion, the tendency in designing blowing engines seems to be in the following directions:

1. Compounding.

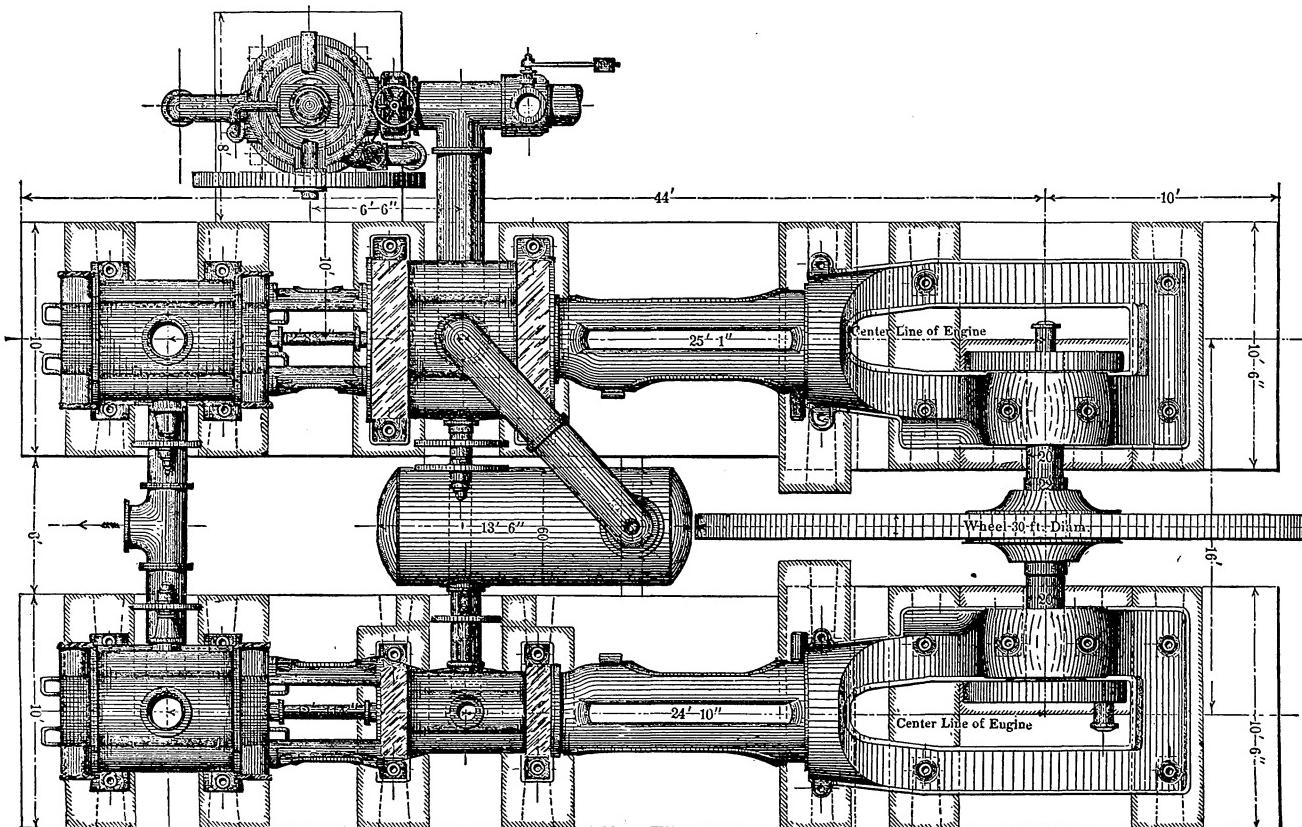


Fig. 2.—Plan.

BESSEMER BLOWING ENGINE, OHIO STEEL COMPANY.

heads, was heated about 25° C. more than in the case of the other engine. It is plain, therefore, that a blowing engine should have air valves which will not only give ample area of inlet passage, but give this in a small number of good-sized openings.

Figs. 1 and 2 are the plan and elevation, and Fig. 3 is the diagram of air valves and valve gear of a compound horizontal blowing engine, now being constructed by the well-known builders, the E. P. Allis Company, for the Ohio Steel Company. The engine is a Reynolds-Couiss cross compound; steam cylinders, 40 x 78 inch; air cylinders, 60 inch; stroke, 60-inch, with re heater in intermediate receiver, and is provided with an independent condenser. In general design this engine, as will be seen at a glance, is very similar to the large quadruple-expansion engine by the same builders to be seen at the exposition. The air cylinders are so arranged as to draw the air through pipes, which project above the roof of the

holding it against the seat, and remains stationary during the return stroke of the piston, and also while the piston advances toward it again, until it has compressed the air in the cylinder to nearly the same pressure as in the receiver, at which time the pressure on the back of the valve becomes so nearly balanced that the vacuum pot can move the valve, which is then quickly thrown open. The telescopic connecting rod is so constructed that a small dash pot is formed at the bottom of the tube, to avoid shock should the plunger strike the bottom while the valve is open or when the closing motion begins. It will be observed that no trip or releasing gear of any kind is used with these valves, the holding and releasing being done by friction, controlled in the simplest possible manner by the air pressure in receiver and cylinder. The outlet valves are also held against their seats by long flat springs bearing in the center on the back of the valve and at ends on blocks

2. Obtaining valve gear which will give liberal openings at both inlet and outlet, and which can be operated at a fairly rapid speed.

The latter advantage can probably be best secured by the use of metal valves operated as far as possible positively, which will also do away with the vexation due to the use of leather, gum and other short-lived materials.

In the discussion to this paper, Fred. W. Gordon of Philadelphia contributed the following: There can be no objection to the use of cross compound blowing engines, and when they are condensing they are susceptible of great range of duty with slight loss in efficiency. By those who have use for the full heat of the waste gases, this type of engine should be used; but many furnaces are not so located. The pig iron is their finished product, and the gases are to be used only for furnace use. In this case simple engines are preferable, being less expensive and having less parts to take care of, which

reasons determined the introduction of the engines designed by me for the Poughkeepsie Iron Company. There are three of these engines to furnish blast for two furnaces, for a make of about 250 tons per day, using 75 per cent. anthracite and 85 per cent. magnetic ores, and they are expected to blow up to 20 pounds pressure per square inch.

For blast furnaces I prefer the single to the coupled engine, except in compounding. The engine presented (see *The Iron Age*, June 22, 1893, page 1380) is practically the same as half of that presented by Mr. Kennedy, except in detail. Our inlet valve is double ported and placed inside the cylinder, whereby it works under less constant pressure and has less motion, while the

is $7\frac{1}{2}$ inches diameter, which, with its own weight and the weight of the blast piston, has a deflection of $\frac{1}{16}$ inch. The slipper referred to and the full-width bell ring of the steam piston have to carry this. The stuffing boxes are made to accommodate the spring of the rod. The blast piston is turned $\frac{1}{8}$ smaller than the cylinder, and the brass segmental rings only touch the cylinder. We think, with these plans well carried out, there can be no further objection to the blowing horizontal engine than to the horizontal engine so extensively used, and it has the same advantages.

Through a reorganization of the Chapin Mining Company, at Milwaukee, Wis., on the 10th inst., Ferdinand Schlesin-

dividend may be earned, which, from the low rates ruling for the past four weeks, has been an impossibility. This action will materially reduce the amount of tonnage from which Baltimore, Philadelphia and Newport News shippers have been accustomed to draw.

Self-Balancing Turbine.

In the De Laval steam turbine, which runs at a speed of 30,000 revolutions for the 5 horse-power machine, a novel method is employed for obviating any defect in the balancing. The turbine is provided with a flexible shaft, the wheel disk being placed on the thin portion of the shaft and at a consider-

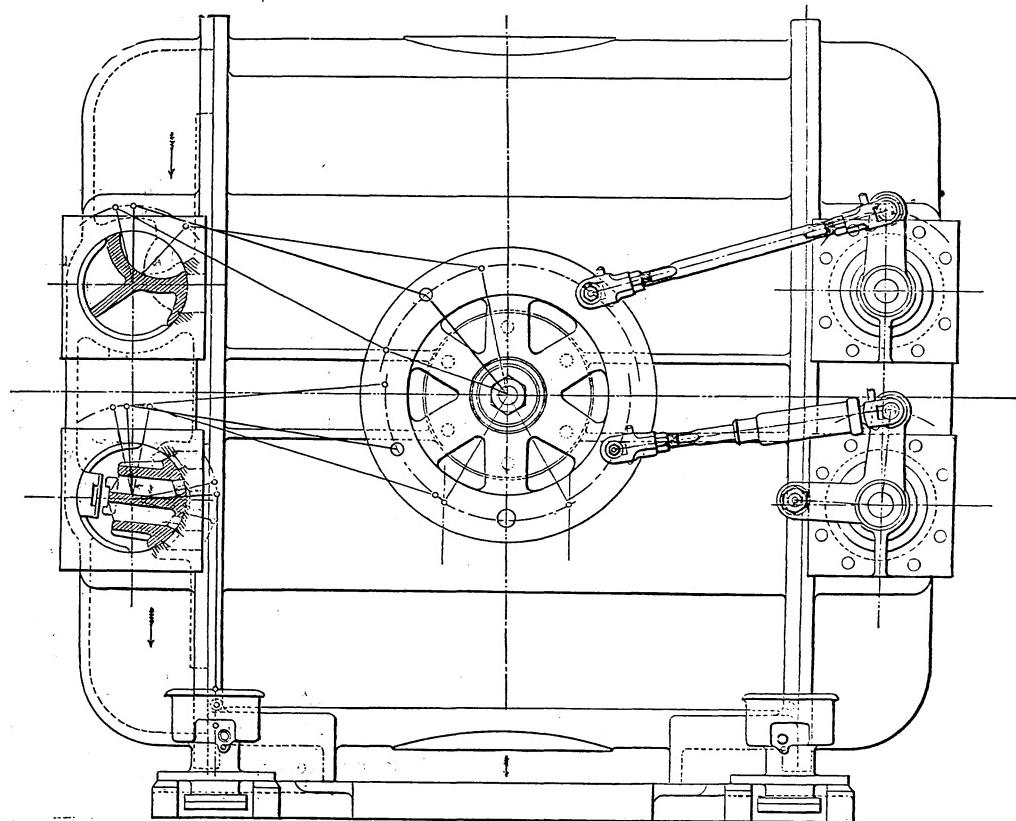


Fig. 3.—Elevation of Air Cylinder and Valve Gear.

BESSEMER BLOWING ENGINE. OHIO STEEL COMPANY.

increase of clearance is but one half of 1 per cent. These valves have each 452 square inches area, which for the limited piston speed of 360 feet is ample. The outlet valve openings in head are 6 inches in diameter and there are 36 in all—18 in each end. The valves are very light, of phosphor bronze, have flat seats and slide on fixed stems. The valve's center of gravity is in the line of the seat to avoid a tendency to cant. The end of the stem is a collar $2\frac{1}{2}$ inches in diameter, forming a piston fitted to a chamber in the valve. This acts as an air cushion and saves the valve seat and the noise of rapid closing. Loose leather collars, between which the air always exists, form the cushion for the opening movement. When compared to the usual area of air-compressor engines, these will appear excessive.

Horizontal blowing engines have long since been out of date, and simultaneously here are two large machines presented. You will note that our engine has a tail-end bearing. The piston rod

ger retires from the management of the company, and R. C. Flanigan of Norway, Mich., succeeds him as trustee for the creditors. Under the plan of reorganization the company are to issue \$1,033,000 of bonds in three classes. The first class is to be \$200 000, to be due in a year, the second \$538,000, payable in two years, and the third \$300,000, payable in four years. The first class is to be used in paying labor claims and in keeping the mine in repair. The second class is to pay freight and royalties. The third class is to be used in operating expenses. The debts of the company for royalties, labor, &c., amount to \$625,000 and the quick assets to \$600 000.

The New England vessel owners are reported to be contemplating the laying up of coal vessels aggregating from 200,000 to 250,000 tons of coal-carrying capacity, in order to regulate coast-wise freight rates on coal, so that a

able distance from the bearings, the shaft for 20 horse-power being about $\frac{3}{8}$ inch in diameter for a distance of about 4 or 5 inches each side of the disk.

A yielding shaft allows the turbine at the high rate of speed to adjust itself and revolve around its true center of gravity, the center line of the shaft meanwhile describing a surface of revolution. If the shaft were stiff the vibrations of the turbine wheel would be communicated to the bearings, which would then run warm. The purpose of allowing an adjustment of the wheel can also be accomplished by making the journals yielding ; but this arrangement requires complicated and expensive details of construction. The bearing of the free end of the flexible shaft is provided with a ball fastening, in order to allow it to adjust itself to the shaft. Moreover, all the journals are provided with lubricating grooves and anti-friction metal, thus being specially adapted for effective lubrication.

THE WEEK.

The largest consignment of gold that ever reached the United States in one vessel was landed from the North German Lloyd Company's steamer "Spree" at New York last week. It amounted to \$4,250,000, packed in 126 boxes, the whole weighing some six and a half tons.

The Mississippi Valley Lumber Association meeting last week in Minneapolis in semi annual session agreed to reduce the cut for the rest of the season one-half. The sawmills will be closed on September 20.

Comptroller Eckels predicts that nine out of ten of the banks which have closed during the present stress will open for business again.

Rice cultivation is strongly recommended by the Agricultural Department in certain sections of the South, particularly in Southwest Louisiana, where there are hundreds of thousands of acres lying idle which are admirably adapted for raising this cereal. As rice forms the staple food of more than two-thirds of the human race a market for all that can be grown will never be wanting.

This year's British wheat crop is estimated at 7,000,000 quarters, which leaves about 21,000,000 quarters to be imported. Reducing the stock left over from 1892, there will be needed 19,000,000 quarters. The *Mark Lane Express* of London, in its weekly review of the British grain trade, said a few days ago in respect of this circumstance: "It is not easy to see where this supply is to come from. It will absorb all the good crops of Russia, India and South-eastern Europe to fill the British requirements." Where do the United States and Canada come in? Wheat is said to be grown in both countries.

Business in the iron and steel trades was dead in Sweden during 1892, but hopes of new markets are indulged in from her exhibits at Chicago.

The following table gives the total value of exports of leading domestic products from the United States for two years to June 30:

| | 1892. | 1893. |
|------------------------------|-----------------|---------------|
| Cotton, raw..... | \$258,461,241 | \$188,766,274 |
| Breadstuffs..... | 259,363,117 | 198,034,203 |
| Meat and dairy products..... | 140,362,159 | 137,031,669 |
| Cattle, sheep and hogs..... | 35,624,281 | 26,541,801 |
| Mineral oils..... | 44,805,992 | 42,077,770 |
| All other articles..... | 237,15,221 | 237,339,013 |
| Total..... | \$1,015,732,011 | \$830,790,730 |

Cargoes of all descriptions are unusually scarce on the lakes and there is general mention of vessels laying up till better times.

The executive and advisory councils at Honolulu have introduced an act vesting the crown lands of Hawaii in the provisional government and providing for their division and settlement.

Kansas will have a wheat crop of less than one-third of last year's product.

Impending war in the wall-paper trade is rumored on account of the alleged efforts of the National Wall Paper Company to boycott the manufacturers who do not work with that combination. The company are said to control 80 per cent. of the entire output of the United States, and it is claimed that they have secured almost the whole trade of the country by offering premiums to such jobbers and retailers as pur-

chase their supplies exclusively. The 20 per cent. of outsiders are now combining to fight the consolidated corporation.

The Treasury Department has issued a detailed statement of receipts from internal revenue for the fiscal year ending June 30, 1893, which shows an increase in nearly every department, even greater in proportion than the growth of the country in population. The net increase of receipts from all sources was \$7,145,093, or from \$153,857,544 in 1892 to \$161,002,637 for the past fiscal year.

Canadian Pacific Railway reports indicate that the crops in the Northwest of Canada will far exceed the yield of last year.

The August Government crop report for the United States shows a decline in the condition of nearly all agricultural productions except hay, due mainly to the drought which has prevailed in most parts of the country.

Western farmers are anxious to ship their hay for export to Europe, but as they want fancy prices for it, shippers will not take hold. No domestic hay has consequently been exported yet, although Canada is sending her's abroad in great quantities through the New York bonded warehouses.

One of the largest steamboats in the world was launched on Thursday, August 10, at the shipyard of the Delaware River Iron Ship Building & Engine Company, formerly the John Roach shipyard, at Chester, Pa. The vessel has been built for the Fall River Line and is named the "Priscilla." The boat, which is larger than the well-known "Puritan," is 424 feet on the water-line and 440 feet over all. Her width is 52 feet 6 inches, draft 12 feet 6 inches, and total displacement about 4550 tons, with cargo capacity of 800 tons and passenger capacity of 1400. The hull of the vessel is built of steel, with 52 water-tight compartments, and she will be furnished with double inclined compound engines, with 8500 indicated horse power. The design of the "Priscilla" is due to George Pierce, supervisor of the Fall River Line, and the engines were designed by Andrew Fletcher of the North River Iron Works, Hoboken. The vessel will receive her engines and be finished in New York.

Reports of retrenchment on leading railroads continue to be published.

A decision favorable to the Chicago Power Supply & Smoke Abating Company has been given by the Chicago courts, permitting them to proceed with the work of laying a conduit through the business part of the city for the supply of compressed air at 100 pounds per square inch. The air will be sold at a fixed rate for power purposes and for ventilating theaters, schools, hospitals, &c.

Implement manufacturers and dealers in Minneapolis and St. Paul have had a desperately dull season, except in the line of harvesting machinery. In South Dakota, on the contrary, a very large trade has been done in all lines of agricultural machinery, owing to the great influx of immigrants to that State during the present season.

Negotiations are going on between the governments of Great Britain and the United States for the establishment of an international system of removing the floating wrecks which are a menace to transatlantic navigation. It is pro-

posed that the two governments should each detach two vessels for the purpose of clearing the ocean track of such derelicts.

The question of accepting part payments of their wages and allowing the remainder to stand to their credit on the books of their employers until the financial stringency is ended will probably be decided among the members of the American Flint Glass Workers' Union affirmatively, and it is probable that by the influence which they will be able to exert the national officers of the union will facilitate the early starting of a number of factories and the employment of thousands of men.

The Austrian Board of Trade report for the year 1892 shows the exports from that country to have been \$275,691,600, and the imports \$238,963,200; leaving a balance in favor of the monarchy of \$36,728,400, which is little more than half that of the preceding year. The year 1892 was, however, generally one of reduced production and sale.

In view of the tariff war between Germany and Russia, which appears likely to close the markets of the former to Caucasian grain, it is interesting to find that the United States is the principal grain supplier of the Fatherland, Russia coming first in barley only. The German grain imports from the two countries during 1892 were as follows:

| | Wheat. | Rye. | Barley. |
|-------------------------|---------|---------|---------|
| | Tons. | Tons. | Tons. |
| From United States..... | 620,213 | 136,129 | 10,293 |
| From Russia..... | 257,839 | 128,987 | 17,075 |

The other contributing countries were Roumania, Argentina, Bulgaria, British East India, Austria and the Netherlands, but in much smaller quantities.

James H. Eckels, Comptroller of the Currency, in a letter to F. B. Baird, vice-president of the Buffalo Furnace Company, stated that, in his opinion, it would not be unlawful to use certified checks as currency, because such a course would involve a contract between the depositor and his creditor, and would be independent of the bank. "As understood, the proposition appears to involve a business contract between the depositors and their creditors, and in my opinion such transaction would not constitute a violation of Section 5183, as the checks will be issued by the depositors and not by the banks. As to a certification of such checks by national banks when drawn against deposits to credit of drawer, I can find no legal objection."

Charles D. Kellogg of the Charity Organization Society says that pauperism has for the past ten years increased in a far larger proportion than the population of New York, owing to the vast immigration of indigent aliens.

Between 1859 and 1889 India absorbed \$561,600,000 in gold and \$1,089,600,000 in silver, or \$1,651,200,000 in all. What has become of the silver we do not exactly know, says the London *Spectator*, though it is certain that a great proportion of it is hoarded as fixed and visible wealth, but about the destination of the gold there is no doubt whatever. The people have got the whole of it in their own hands, for it is not in circulation, and are using it either in ornaments, kept, be it observed, to pawn in extremity, or as hoarded treasure in coin, such as lies under almost ever peasant's floor in the Punjab and Eastern Bengal.

The Iron Age

New York, Thursday, August 17, 1893.

DAVID WILLIAMS, - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - EDITOR.
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - HARDWARE EDITOR.
JOHN S. KING, - - BUSINESS MANAGER.

Silver and the Debtor Class.

There has been an inclination during the heated discussion of the silver question to regard the producers of the white metal as its foremost representatives. It may have been inexplicable to many that an interest so insignificant, relatively speaking, as that of silver mining should command so great an influence. As a matter of fact, the silver miners represent only the skirmish line of the great army for whom the battle is being waged by those who believe that an injustice is being done. While we recognize that there are many champions of silver who are demagogues pure and simple, we are willing to admit that many earnest men are fighting for what they conscientiously hold to be the side of justice. Senator Vest, in the course of the debate in Congress, has summarized the position of these advocates of silver in the following words:

"There is no justice to the debtor, who has made his contract under the bimetallic system, to take away one-half of the currency of the country, and thus take away more than half of his property. No living man can justify such legislation. If Congress had the power now to put this country (all obligations being out of the way) on a single standard, the issue might be a fair one; but, with debts to the amount of \$8,000,000,000 due by the United States, the striking down of about one-half of the currency of the country would be not only unjust and ruinous, but absolutely wicked."

In other words, the debtor class shall have the privilege of paying what it owes in either gold or silver. If silver has declined in value when the loan becomes due, so much the better for the debtor, who is entitled to the advantages of such a decline. When he made his contract, both the creditor and the debtor knew that he might tender one or the other metal. The creditor had the right to insert a gold clause, a right which he did not avail himself of. He is, therefore, not entitled to complain when events have gone against him.

That is all very well, were it not for the fact that the United States Government pledged itself to maintain the parity of gold and silver existing at the time when the contract was entered into. In that capacity it became a party to the agreement.

Now the partisans of silver themselves confess that the old ratio cannot be maintained, since they advocate

the adoption of 20 to 1, or even of 24 to 1, as the new standard of value. They acknowledge, therefore, the third party to the agreement is not to live up to its engagement.

If this country had no business dealings whatever with foreign nations, little trouble might ensue. But since we do trade with them, and do owe them money, foreigners insist upon payment in gold. Fearing a further depreciation they call in their loans and restrict their credits, their example being followed by moneyed men in this country, who would rather pocket a moderate loss now than take the chances for the future. With one party to the bargain intent upon making special terms, and his guarantor weakening under the load, the second party, the creditor, naturally becomes alarmed and distrustful. Until moneyed men are thoroughly assured that no pranks will be played with them by those who believe that they voice the sentiments of the debtor class, capital will hold aloof and money will continue to be hoarded.

We are convinced, however, that few of those who owe money are eager to take advantage of a possible chance to pay back in a depreciated coin. If it were possible to arouse the better element among the debtor class to a vigorous expression of dissent from their self-constituted guardians a good deal would be gained. Indirectly the men who work with borrowed money and have most to gain by maintaining their credit are the greatest losers of property when capital is withdrawn. The greatest sufferers are those who labor with their hands, because they must either deny themselves the necessities of life or must attack their hard-earned accumulations.

We are far from holding that the silver question alone is responsible for the present condition of affairs. We know that the fear of tariff legislation has an important effect and that past national, municipal and personal extravagance has been an influential factor. But before any other co-ordinate causes are dealt with, the fact must be accepted by an overwhelming majority of our people that a debtor cannot afford to indulge in even partial repudiation without disastrous consequences to himself personally and to the community at large.

Were it not for the fact that piece and tonnage men in our industrial establishments are earning only very small sums because they are idle a considerable part of the time, the announcements of reductions in wages would be far more numerous than they are. And yet this system of payment is vindicating itself, even from the standpoint of the employee. With labor employed on the time basis it is now only too often a choice between total idleness or a sharp reduction in the rate of wages. In some instances, where the latter alternative would bring about a struggle with

strong associations, manufacturers either close down altogether or discharge the unmarried or inefficient men. In times like these strong unions are an element of disadvantage to their individual members, since employers prefer idleness to unprofitable work, hampered by endless bickerings with their men.

Industrial Growth Checked.

The manner in which the dearth of money has checked all industrial progress and the rehabilitation of insolvent enterprises is being very forcibly illustrated just now in a few notable instances in Wall street. The long period of depression and attendant bankruptcy which followed the May panic left a number of properties on the shoals. Of the dozen or more mention might be made of National Cordage, Reading, Erie and Northern Pacific. Efforts have been made in a number of cases toward reorganization with only partial success.

The Reading plan was the most favorable one to shareholders, but it fell through because of the opposition of certain general mortgage bondholders. It is generally conceded as fortunate that it did, for had the underwriting syndicate been called upon to hold up the company during the period of tight money through which the country is passing, the strain would have been seriously felt in other directions. The failure of the plan to go through further weakened public confidence, and, without doubt, contributed to the period of distrust which followed.

The Richmond Terminal plan, a most drastic one in its nature, was assented to by nearly all of the multitude of security holders who came under its jurisdiction, simply because it was the only action of a saving nature which they could take. The assessments were regarded as a hardship at the time it was launched, which was during a period when money was much easier than at present. Since the scarcity became aggravated many holders have been forced to sell out; as a result one of the stocks included in the plan, and a fair criterion of the others, sold at $\frac{1}{8}$ of \$1 per share, after two cash assessments aggregating \$3 $\frac{1}{8}$ had been paid thereon. This demonstrates that it is next to impossible to pay the assessments.

Cordage is another concern whose rehabilitation is being delayed on account of tight money. The plan provides for an assessment of 10 per cent. on the common stock and 20 per cent. on the preferred. The first assessment on each, amounting to \$5 and \$10 per share, respectively, was paid on July 10. The second assessment of \$5 per share on each class, due August 10, was extended until August 26, with the understanding that it should bear interest at the rate of 6 per cent. Before the first assessment was paid the common stock was selling at about \$10 per share; with the assessment

paid the current price is about the same figure, it having lost 5 per cent. since July 10. This affords little encouragement to shareholders, who will soon be forced to pay the second assessment. No one questions the ability of the bankers' syndicate which has the reorganization in charge to bring it to a successful conclusion. The time required, however, will, unless conditions change materially, be longer than September 10, the date on which the last assessment on the preferred stock is due.

General Electric has a floating debt of about \$4,000,000. It has been making heroic efforts to fund this, and without tangible results until lately. The stock, in consequence, sold down from 115 to 31, and is now about 40. We understand that a plan will be put out in a few days to care for this floating debt. From the little known of the plan the opinion formed is that drastic measures have been resorted to to raise the money. A security company will be formed with a preferred capital of from \$4,000,000 to \$4,500,000, entitled to 6 per cent. interest, and a common capital stock of from \$4,000,000 to \$4,500,000 to be given as a bonus to the subscribers of the preferred. This issue of from \$8,000,000 to \$9,000,000 stock is to be made to raise \$4,000,000 cash. The assets against which the stock is to be issued are the security assets in the company's treasury, which, on January 1, represented a par value of \$16,220,391, and an 8 per cent. value of \$9,173,251. Of these stocks some 15,000 shares of New York Edison Electric Illuminating and 5000 of Boston Edison Electric Illuminating were sold early in the spring to relieve the more pressing needs of the company. The amount of these stocks which will be used to offset the stock to be issued is not known.

Another example of the damper which is being placed on industrial enterprises is the action taken by the Manhattan directors Tuesday regarding rapid transit in New York. This company went so far, late in the spring, in their negotiations as to offer the city \$100,000 per annum in addition to their regular tax for franchises, reserving the right to build to Yonkers at their discretion. The city's proposition was not greatly different, and the belief prevailed that an agreement would be reached. The communication which will be read before the Rapid Transit Commission to-day will say that in view of the financial depression the Manhattan Elevated Railway Company deem it unwise to undertake extensions such as are proposed, thus giving up the project unless the Rapid Transit Commission deem it wise to wait until times change for the better.

Other examples might be cited, but the foregoing is sufficient to show that it is next to impossible, even where the strongest backing exists, to place enterprises on their feet, much less extend those which are in existence. In the same degree it is impossible to float new concerns, and it can be said that not one of any prominence has appeared in Wall street for four months.

The National Lead Company.

In the spring *The Iron Age* referred editorially to the unwarranted attack made upon the National Lead Company's stock by the bear contingent of Wall street. We pointed out the fact that rumors of ruinous competition, the payment of dividends not earned, the deterioration of the company's product and a score of others of the same sort, notably that the common stock would not pay a second dividend, were false. This attitude has been fully confirmed by subsequent events. Notwithstanding the fact that the National Lead Company are engaged in manufacture in a dozen different lines, that their business extends over every State in the Union, and that they are largely dependent upon the prosperity of the country for their revenue, they have been placed in a position to weather the storm at the minimum loss. A case in point: President Thompson became convinced early in the summer that there would be an upheaval in the silver industry, and thereupon closed down, two months before the action of the India Council became known, the company's two smelting plants. When the savage drop in the price of silver came the company were without any bullion on hand, having disposed of it at the higher figures. To-day the company have nearly \$1,000,000 in the bank, report that collections are excellent, that prices are fully maintained and that the volume of business is nearly up to the average.

Six Months' Bank Failures.—*Bradstreet's* has made a compilation covering the first six months of the current year concerning bank failures. The record given shows that 43 national banks suspended payments permanently or temporarily during the first half of this year, owing, as nearly as has been ascertained, about \$23,106,000, and reporting \$23,429,000 in assets. The number of State banks similarly situated was 72, with \$15,865,000 liabilities and \$14,599,000 assets; savings banks 20, with \$6,170,000 liabilities and \$6,462,000 assets; loan and trust companies 4, with \$12,765,000 debts and \$5,850,000 assets, and 80 private banks and bankers, with liabilities amounting to \$9,383,000 and assets to \$8,038,000. There were also 5 mortgage loan and investment companies reported embarrassed, with \$1,090,000 of debts and \$420,000 assets, while 8 brokers in securities were forced to suspend, owing \$1,603,000 and having assets of \$692,000. The 43 embarrassed national banks, owing \$23,106,000 and having assets of \$23,429,000, may be contrasted with 176 State, savings and private banks and trust company banking institutions suspended, owing in the aggregate \$40,741,000 and having \$30,958,000 to pay with. Aggregates of debts of embarrassed State and private banks and trust companies showed excesses as compared with assets reported.

A new naphtha launch, the "Queen Anne," excites some interest in engineering circles in Chicago. The explosion in the naphtha vapor which furnishes the power is caused by introducing an electric spark. The "Queen Anne" and her engine were designed and built by Thomas Kane of Racine, Wis., and brought to Chicago for trial. The naphtha is changed into vapor in the front part of the boat, and is conducted to the cylinders of the engine. The electricity is furnished by a six cell battery under the floor, and the wires

lead to the two cylinders. The chief merit of this engine over steam for a small boat is that it does away with heat, the boiler and fire box of the ordinary launch being done away with. The engine is easy to handle, and the boat does not require a licensed engineer and pilot. The machinery develops about 10 net horse power, and will run the launch about 10 miles an hour. The propeller wheel is 32 inches in diameter. The boat itself is 33 feet long and 8 feet beam, and draws 32 inches. During the run from Racine to Chicago the engine behaved well, and Mr. Kane is confident that it will revolutionize the motive power of small boats.

CORRESPONDENCE.

American Cream Separator Bowls.

To the Editor: In your issue of August 3, page 192, in speaking of the Surahammer Works exhibit at the fair, your correspondent uses this expression in speaking of the steel milk separator bowls for dairy use: "These works enjoy a monopoly of this trade, as they are the only works in the world where these machines are made."

We wish to call your attention to the inclosed catalogue illustrating this same style of work as is done by this company. Take, for example, the cut of the bowl on the cover of our small catalogue, which is the very style of bowl that they mention. We call your attention to page 19, showing a bowl that is much more difficult to make, which is made of 4-inch Otis steel; and if your correspondent will go into the Transportation Building he will see there exhibited by the Otis Steel Company several different designs of cream separator bowls made by us from their steel, which, we are informed by experts, are equal in workmanship and finish to either the exhibit of the Surahammer Works or the Krupp. We are a little jealous of our reputation on this class of work, and if your correspondent will also see the exhibit of Davis & Rankin Building & Mfg. Company, in the Dairy Exhibit, he will see bowls in the rough forging, and also in the finished state in operation. We would also call his attention to work done by us from Singer & Nimick steel, Pittsburgh, in their exhibit, which, we think, is in the Manufactures and Liberal Arts Building.

We would add that we have letters from manufacturers of dairy machinery in this country who claim that our work is equal to any of the bowls that they have imported, and also that the quality of steel made by the Otis Steel Company expressly for these bowls is equal in quality to any Swedish steel that they ever worked on in this line of goods. As far as we know, we are the only works in the United States that have made, are making, or are able to make this class of work. Respectfully,

THE AVERY STAMPING COMPANY.
DOUGLAS PERKINS, receiver.
CLEVELAND, OHIO, August 5, 1893.

The United States protected cruiser "Minneapolis" was successfully launched at Cramps' shipyard, Philadelphia, on the afternoon of Saturday, August 12, in the presence of the Vice-President of the United States, Secretaries Herbert and Morton, and a large number of Senators and Representatives from Washington. The christening ceremony was performed by a daughter of Senator Washburn of Minneapolis.

MANUFACTURING.

Iron and Steel.

The Brown, Bonnell Iron Company, Youngstown, Ohio, advise us that there are no new developments in the matter of their firm building a new blast furnace to replace old Falcon Furnace, which has been dismantled. They also state that there is nothing new regarding wage scale negotiations, their entire plant being closed, with no immediate prospects of resumption. At the works of this concern general repairs are being made, and nearly all the mills are being overhauled and put in good shape. The net work of narrow-gauge tracks is being changed so as to make it more convenient to transfer iron from one place to another, and a new track is being laid to the new warehouse, the frame work of which has been completed. Two large scales for weighing iron have also been put in the new building.

The Lock Foundry Company of Decatur, Ill., will occupy their new quarters in September. As yet they have made no changes in their force or running time, and they are prepared to fill all orders in light gray iron castings, special patterns agricultural work, &c.

The Aetna-Standard Iron & Steel Company, large manufacturers of iron and steel sheets and bars, at Bridgeport, Ohio, have been compelled to make a general reduction in wages, which affects officials of the concern as well as employees. For the purpose of meeting any urgent demands on the part of their customers, and also to assort up their stocks, the Aetna-Standard Iron & Steel Company have started up three of their light sheet mills, and will therefore through their period of idleness be able to meet any ordinary call for supplies of stock material. The firm have not fixed any date for a general resumption of work.

The steel plant of the Colorado Fuel & Iron Company, at Pueblo, Col., resumed operations on Monday with a full force of 1600 men after a shut down for three weeks for repairs. The company have large orders ahead and will run for a year, it is said, without a cessation of operations. The rumor that there is dissatisfaction with the general superintendent, T. W. Robinson, formerly of the Illinois Steel Company, is unfounded.

Last week a notice was posted in open-hearth mill No. 2 of the Homestead Steel Works, at Homestead, Pa., stating that the employees would be laid off for two weeks to give the workmen in No. 1 mill an opportunity to work, so that all employees would have an equal chance to work during the dull business. Open hearth mill No. 1, with the exception of one furnace, has been idle for two weeks.

At the Warren mill of the Youngstown Iron & Steel Company, at Warren, Ohio, all the office force, mechanics and millwrights have been notified that their services will not be needed for the present.

Sharpsville Furnace of the Sharpsville Furnace Company, at Sharpsville, Pa., has been banked down temporarily until the condition of the iron market improves.

The Black Diamond Steel Works of Park, Brother & Co., at Pittsburgh, Pa., closed down on Saturday, the 12th inst., on account of lack of orders. The shut down will probably last only a week, or it may last longer, if sufficient orders to resume operations have not been received in the meantime. On the above date this firm paid off their men, giving them cash for two-thirds of the amount due them and checks for the balance.

The works of the Sterling Steel Company, located at Demmler, Pa., near Pittsburgh, are in operation to nearly their full capacity, giving employment to about 150 men. This concern has a large amount of Government work on hand, which will keep them partially employed for some time.

In all probability an arrangement will be consummated at an early date by which the large plant of the National Tube Works Company at McKeesport, Pa., now idle in all departments, will be put in partial operation. W. C. Converse, general manager of the concern, was in McKeesport last week, and it is believed that, as a result of his visit, the workmen will agree to accept a temporary reduction in wages, with the understanding that with improved trade conditions the reduction will be restored. It is stated that a full appreciation of the condition of affairs exists among the

workmen, and that they are ready and willing to agree to any arrangement by which operations can be resumed.

Every effort is being made to cut down expenses as much as possible at the Homestead Steel Works, Homestead, Pa. A large number of clerks have recently been indefinitely suspended, and the same action will soon be taken with others. None of the departments of this large plant are being operated full time, and in the 119-inch plate mill operations are being conducted on single turn instead of triple turn, the usual custom at this plant.

Last week notices were posted in the American Iron & Steel Works of Jones & Laughlins, Limited, of Pittsburgh, to the effect that the Bessemer steel department will be closed, and also that operations would be suspended in the sheet mill, and in finishing mills Nos. 2 and 10. About 650 men are thrown idle by this suspension of operations.

On Tuesday, the 8th inst., two lap-weld furnaces and two butt-weld furnaces in the plant of the American Tube & Iron Company, at Middletown, Pa., were put in operation. Future operations of the plant depend largely on the number of orders received and the general condition of trade. The present resumption is more of a cleaning up process, in order to get the stock on hand into a merchantable shape, than anything else. It is probable that the works of this concern at Youngstown, Ohio, will also be put in partial operation during this week. Wages of employees at both plants have been reduced 10 per cent.

The Paige Tube Company, Warren, Ohio, will remain idle until the rolling mills resume operations, of which due notice will be given through the newspapers.

It is claimed that the only tube works now in full operation in the United States is that of the Syracuse Tube Company of Syracuse, N. Y.

The Cambridge Corrugating Company, Cambridge, Ohio, after being in business a little over one year, have vacated their leased building and moved into their own new factory, built especially for manufacturing a complete line of corrugated roofing and siding, and a variety of iron and steel products for building purposes. The new building is adjacent to railroad tracks and has excellent shipping facilities. New machinery and modern conveniences are employed. The officers of the company are T. E. Amos, president; C. S. McMahon, secretary; P. C. Patterson, general manager; W. L. Stanley, superintendent.

Press reports state that the sheet steel works and tin-plate department of Wallace, Banfield & Co., Irondale, Ohio (near Wellsville), have closed down for an indefinite period. Later reports state that the temporary closing of the works is only a precautionary measure. Nothing definite is stated concerning the future action of the company. Trade developments are awaited before operations will be pushed with the vigor of the past. In the meantime operations may be partially continued.

The breakage of a main shaft has laid off two sheet mills of the Sharon Iron Company, Sharon, Pa., for two or three weeks.

The Nova Scotia Steel & Forge Company, New Glasgow, Nova Scotia, are making extensive additions to their works. A boiler-plate mill is contemplated, and it is probable that a sheet mill will follow. The Dominion of Canada consumes large quantities of iron and steel sheets each year, but none are manufactured in that country. Statistics show that nearly all that is used is imported from Great Britain.

The operators of the Gadsden, Ala., Furnace state that the report that the furnace would close down on account of the failure of the Attalla Mining & Mfg. Company is entirely incorrect. The furnace is in blast, and there is no prospect of an immediate cessation of work.

It is stated that the Licking Rolling Mills, at Covington, Ky., which closed down a few weeks since, throwing 350 men out of employment, will be placed in operation again at once.

It is stated that the furnace at Dayton, Tenn., will blow out this week and remain idle until there is an improvement in the iron trade.

Reports from Cincinnati, Ohio, indicate that a movement is well under way for a resumption of operations in the rolling mills of that district. During the summer shut down the Newport Iron & Steel Company have put a new foundation under their large engine. It is expected that

work in their mills will be commenced very soon. This concern makes a specialty of light sheets for roofing and corrugating purposes. The jobbing mill of the Licking Rolling Mill has been changed to a light sheet mill and other improvements have been made. This mill resumed work on Wednesday, the 9th ult., and the outlook is good for steady work. The Cincinnati Rolling Mill Company, who are now proprietors of the Riverside Mill, have also changed their jobbing mill for the purpose of making light sheets exclusively, the product being used largely for galvanizing purposes. This plant is now in full operation. At Mitchell, Tranter & Co.'s mills no changes were made this summer. Operations have commenced and a steady run is anticipated. The Anchor Iron Works, formerly owned by the late Colonel Dayton, which were sold recently for the extraordinarily low sum of \$38,000, are still idle and nothing can be learned concerning the future of this plant. Machine shops, boiler works and other industries allied to the iron and steel trade are doing a fair business.

The Citico Furnace, at Chattanooga, Tenn., has banked its fires while some necessary repairs are being made. It will probably resume in the course of a week or ten days.

The Etowah Mining & Mfg. Company of Gadsden, Ala., owing to the tightness in money matters and desirous of protecting all creditors, have filed a deed of trust with W. M. Nixon as trustee, according to the Birmingham News. The assets of the company are about five times greater than their liabilities. On June 12 last the company purchased the Attalla Mining & Mfg. Company, which property is included in the deed of trust.

The Edgemoor Iron Company of Edgemoor, Del., are experiencing the depression which is general throughout the iron trade of the country, and have found it necessary to lay off a number of hands in the various departments.

The Cherry Valley Furnace, at Leetonia, Ohio, has blown out for the purpose of relining. It is expected that the furnace will blow in again as soon as repairs have been completed.

The Low Moor Iron Company of Virginia, whose furnace is situated at Low Moor, Allegheny County, Va., have not felt the effects of the depression of which their competitors in the iron trade generally complain. With the exception of slow collections and a slight falling off in orders their business is up to its usual mark. The furnace is now running, and will continue in operation, so far as is now known.

The Phoenix Iron Company, Phoenixville, Pa., have notified their day workmen of a reduction in wages, and the rollers and heaters of an increase in their tonnage. The reduction is stated to be equivalent to 15 per cent. The dullness in the iron trade has made a curtailment of expenses necessary, and the company considered a reduction in wages preferable to a reduction in force.

The American Steel Works, located at Garwood, N. J., have closed down indefinitely, throwing out 150 men.

The Scottdale Iron & Steel Company of Scottdale, Pa., have started their rolling mill, after a shut down of several weeks for repairs.

The puddlers employed on the day turn at the Cherry Valley Iron Works, at Leetonia, Ohio, who were out on strike because the company refused to reinstate the puddlers of the night turn who had been discharged, have returned to work, the matter having been amicably adjusted.

On Saturday, the 12th inst., the Duquesne Steel Works, at Duquesne, Pa., closed down in all departments for an indefinite period, on account of lack of orders. Steel billets have been the exclusive product of these works for some time, the daily output being about 1000 tons. At the Homestead Steel Works, Homestead, Pa., the armor-plate mill, which has been running double turn for about a year, has been put on single turn. The reason advanced for the taking of this step is that the Government is not prepared to take armor plate as fast as it has been turned out, and as a result a large stock has accumulated. At the Beaver Falls Mills, Beaver Falls, Pa., which have been closed for three or four weeks, the wire-mills department was put in operation on Monday, the 14th inst., and the wire-nail department on the day following. The rod mills will not resume operations for some little time yet, owing to there being a large stock of rods on hand.

A meeting of the creditors of Wm. M. Kaufman & Co., proprietors of the Sheridan Furnaces, at Sheridan, Pa., was held in Reading, Pa., last week. The following statement of the affairs of Wm. M. Kaufman & Co. was presented to the creditors at the meeting: Bills payable, \$231,322.83; book accounts, \$38,960.64; J. J. Mohr, execution creditor, balance due, \$41,875.42; bonded and mortgage indebtedness payable, \$85,000; balance due hands, \$9000; total, \$406,158.89; assets, book accounts, good, \$5638.13; material on hand, \$68,854; book accounts receivable, doubtful, \$1940.24; personal property, \$1697.25; total, \$78,129.62, leaving a balance of bonded and floating indebtedness, \$328,029.27; real estate, \$396,840.41; liabilities on same, \$328,039.27; surplus, \$38,311.14. A statement was also read showing that \$10,338.07 worth of iron was shipped to Philadelphia and which is still on hand there, leaving Mr. Mohr's claim \$31,037.38. The firm stated that if allowed to continue in operation they were certain they would be able to pay their creditors in full in four years' time, payments of 25 per cent. of the indebtedness to be made annually. This proposition was accepted by the creditors, and in all probability the furnaces will continue in operation right along. It was also decided that a committee of three creditors be appointed to overlook the business and make suggestions to the firm in the interest of the creditors.

Machinery.

Isaac W. Frank of Pittsburgh has been appointed receiver for the Lewis Foundry & Machine Company of that city. The case is not one of financial embarrassment, but was brought about by difficulties between the stockholders and officials of the company. Mr. Frank, who has been appointed receiver, was connected with the Lewis Foundry & Machine Company for a number of years, but is now chairman and general manager of the Frank-Kneeland Machine Company of Pittsburgh, manufacturers of rolling mill machinery.

It is stated that the Westinghouse Electric & Mfg. Company of Pittsburgh are selling their products for cash only, but notwithstanding this the concern are now giving employment to about 1100 hands.

Gustave Ehrhardt & Sons of Pittsburgh, with works at Homewood, Pa., manufacturers of cold saws and cold-sawing machinery, have made an assignment to John Mu-lart.

The Reeves Pulley Company of Columbus, Ind., have just completed a wooden pulley 11½ feet in diameter, with a 72 inch face, for the Linden Paper Company of Holyoke, Mass., to be used in one of their mills. This is the largest face the company have ever constructed. This makes the fourth extremely large Reeves pulley shipped into Holyoke.

For the first time in 20 years every department of the immense plant of Russell & Co., at Massillon, Ohio, the well-known manufacturers of engines, threshers and saw mills, was closed down last week for an indefinite period. Heretofore at this season of the year this firm have been compelled ordinarily to run night and day, and even then were utterly unable to fill orders. In their automatic engine department, which includes their boiler department, orders have fallen off every month since October last, and recently contracts entered have been suspended, pending restoration of confidence. Forced purchases alone offer new business, and such is sought for so eagerly that cost seems to cut no figure in making prices. In their farm-machinery department orders have been materially affected by the low price of products. It is probable that work will be resumed in a small way in some departments as soon as their annual inventory has been taken, but to what extent this will be carried on is now quite uncertain.

Ten hours' work for nine hours' pay will hereafter be the rule at the machine shops and foundries of the Lloyd-Booth Company and Wm. Tod & Co., manufacturers of rolling-mill machinery and engines at Youngstown, Ohio. It is stated that other concerns will follow suit.

Griffith & Wedge, Zanesville, Ohio, continue to employ their full force of men in the manufacture of mining machinery, which they are shipping as fast as made to various mining regions.

The Akron Tool Company of Akron, Ohio, are in receipt of orders from the Pittsburgh, Shenango & Lake Erie Rail-way Company and the Alabama Midland

Railway Company for McNeil balanced, automatic dump, charging barrows, to equip the coaling stations of the lines referred to. They have an order from the Cleveland Gaslight & Coke Company for an additional number of these barrows of extra heavy weight for use in handling hot coke.

The Blandy Machine Company, Zanesville, Ohio, are able to keep their force together during dull times. They are engaged in the manufacture of engines and boilers, also brick-making machinery, for which the demand holds good.

The Fulton Boiler Works of Richmond, Ind., are running full handed in every branch of their business. Their boiler shop is very rushed, and as they sell chiefly to consumers direct, their sheet-iron works and foundry are proportionately busy.

The Southern Malleable Iron Works, Chattanooga, Tenn., are reported to have resumed operations and to be crowded with orders, including a large contract with the Missouri Car & Foundry Company for the necessary iron work for 1000 cars. An additional wing is to be built to the present shop.

Frank B. Dyche has been appointed receiver for the Rice & Whitacre Mfg. Company, manufacturers of engines, boilers and steam and hot-water appliances at 47 South Canal street, Chicago. The application was made by Emma L. S. Rice, one of several in whose favor the company confessed judgments on the 8th inst., for amounts aggregating \$14,275. The company were organized with a capital stock of \$60,000 and claim present assets approximating this amount. No estimate is made of the liabilities beyond the general admissions of the concern's inability to meet their obligations.

Creditors of the Hercules Iron Company of Chicago held a meeting last week to consider a proposition to continue operating the Aurora plant in the interests of creditors. The cold-storage warehouse fire at the World's Fair was a total loss to the company, and when the assignment was made the liabilities of the company were found to be \$400,000, with doubtful and slow assets approximating that amount. The consensus of opinion was that the plant at Aurora should be operated, but not, however, until more of the creditors join their issues in this interest. For this purpose a petition will be circulated among those holding claims against the company. It is said if the Aurora plant is operated \$500,000 assets can be secured against the \$400,000 liabilities.

L. & R. Wister & Co. of Philadelphia are agents for the Pierpoint water-tube boiler in Eastern Pennsylvania, New Jersey, Delaware and Maryland.

Application has been made for the appointment of a receiver for the Standard Mfg. Company of Kansas City, Mo. The company were incorporated last spring for the manufacture of machinery of all kinds. The total indebtedness of the company is \$12,000 and their assets about \$80,000. The motion for receiver was sustained and A. G. Bodwell was appointed to that office and his bond fixed at \$25,000.

On account of the closing down of their rolling mill and the inability to procure iron for the making of pipe, the Niles Tool Works Company of Niles, Ohio, have closed down their plant until such time as the rolling mills resume operations.

The Indianapolis Bolt & Machine Company, Indianapolis, Ind., have finished repairing the building recently damaged by fire, and have also enlarged their shops, giving 20 per cent. more room. Ninety-five men are now employed, and orders are booked a considerable time ahead.

The Graham Twist Drill Company of Detroit, Mich., have put their employees on half time.

The foundry and machine shops of the Eureka Cast Steel Company, at Chester, Pa., have been destroyed by fire. As soon as the insurance can be adjusted the company will rebuild, as a number of pressing orders are now being filled. The cupola, open hearth furnace, drying and annealing furnaces were not injured, but the cranes were destroyed. The company carried an insurance of \$27,000, which will cover the loss.

William Wright's machine shop at Newburg, N. Y., is running on full time, but the foundry time has been reduced to three days a week.

The Coleman Foundry, at Morris, Ill., has closed for an indefinite period.

The Jones & Lamson Machine Company, makers of lathes, &c., and the Parks & Woolson Machine Company, both of Springfield, Vt., have started up after an idleness of two weeks undergoing repairs. The former company operate their plant night and day, their facilities being too limited to handle their orders promptly with one set of men.

The night shift, consisting of 72 men, has been laid off at the Lake Erie Engineering Works, Buffalo, N. Y. The day shift is still at work, and the boiler works are running with a full force on special orders.

The Michigan Forge & Iron Works, Detroit, Mich., employing 200 men, have shut down for an indefinite period, owing to lack of orders.

The Williamsport Machine Company of Williamsport, Pa., have notified their 100 employees of a reduction of 10 per cent. in wages.

The foundry of the printing press works of C. E. Cottrell & So's, at Westerly, R. I., has resumed operations, after being closed for two weeks.

The Ohio Thresher & Engine Company of Upper Sandusky, Ohio, have gone into the hands of a receiver in order to prevent a sacrifice being made of the property by the creditors. The plant will be operated by the receiver.

The foundry department of the Farrel Foundry & Machine Company, Ansonia, Conn., is running three days a week.

The machine shop of the Carlisle Mfg. Company, Carlisle, Pa., has been closed down indefinitely.

At the plant of the Westinghouse Air Brake Company, at Wilmerding, Pa., commencing on Monday, the 14th inst., all the employees have been put on four days time of eight hours each. A large stock of brakes is on hand, and this, together with the very light demand for brakes from railroads, is the reason for the taking of this action.

Miscellaneous.

The factory of the Lalance & Grosjean Mfg. Company, at Woodhaven, L. I., and their rolling mills at Harrisburg, Pa., were closed down indefinitely on the 12th inst., throwing 1700 persons out of employment. Vice-President A. J. Cordier stated that the firm had been unwillingly constrained to take this course on account of the dullness of trade and diminution of the volume of orders, which did not justify them in piling up a greater amount of stock than is already held, especially in view of the possibility of tariff changes affecting their special productions.

The Michigan-Peninsular Car Company of Detroit, Mich., have greatly reduced their working force. Fifteen hundred men have been laid off by the two plants, while it is expected that both establishments will shut down about September 1, when orders now on hand have been filled. A reduction of the wages of about 1600 men still working has already been made.

The plant of the Geiser Mfg. Company, Waynesborough, Pa., manufacturers of engines, saw mills and threshers, has closed down indefinitely.

At Newburyport, Mass., the Newbury-port Car Works have closed down for an indefinite period.

The car manufacturing works of Osgood, Bradley & Co., at Worcester, Mass., employing 190 men, have closed down for an indefinite period.

The Fuller & Johnson Mfg. Company of Minneapolis, Minn., makers of agricultural implements, have shut down their works indefinitely, and over 200 men are idle.

The Terre Haute Car Mfg. Company's plant, at Terre Haute, Ind., has been partially destroyed by fire. The loss is \$75,000 and covered by insurance.

It is estimated that between 1100 and 1200 men are idle in Bay View, Wis., while the entire working force will not figure up 500 hands.

The Pittsburgh Wire Works, at Wilmerding, Pa., have started up, giving employment to about 400 men. The company state that the works will be operated solely for the purpose of keeping the men employed.

Dispatches from Oakland, Cal., announce the destruction by fire of the Pacific Nail Works. The estimated loss is \$250,000, and the insurance \$175,000.

Frank K. Dunn was appointed receiver for the Bain Stove Mfg. Company of Charleston, Ill., on August 11.

TRADE REPORT

Eager watchers of the Iron markets note in some instances the first symptoms of a better feeling. It is probably natural that even the slightest evidence of a turn is given attention beyond its real significance. But affairs have been in so wretched a condition and bad news has been so overwhelming that any offset against them is hailed with delight.

Chicago is beginning to cultivate a hopeful view, largely based on the promise of a greater attendance at the fair. There has been some local buying of Pig Iron, and the expected purchases of Bars by those who follow the leadership of the largest consumers are beginning to be noticed.

It is reasonable to look to the markets east of the Allegheny Mountains for the first signs, because it is in that territory that relatively there is the greatest production among the rolling mills and steels works. In the West so many are still idle, undergoing repairs or awaiting settlement of wages questions, that what work originates in neutral territory goes to the Eastern mills. As our Philadelphia correspondent points out, the first step in the direction of an improvement must come in the shape of a larger volume of business. Since occasional transactions of magnitude are cropping up, the inference is drawn that the very worst is over. Thus there has been a sale of several thousand tons of Steel Billets at \$22.75, delivered.

There will have to be quite a prolonged period of activity, involving heavy sales of materials, before there is any prospect whatever of better prices. With Soft Steel in the commencing position which it now occupies, the attitude of the Steel Rail trade will continue a menace to any notable improvement. Last month the orders taken were only 50,000 tons, or one-third of what would be a decent monthly average, while shipments were about 90,000 tons. No notable improvement is hoped for during the balance of the year. Practically the manufacturers of rolling stock are in the same position as those dependent upon extension or renewal of permanent way, and Wheel foundries, Tire makers, Axle forges, Plate and Bar mills are the sufferers.

The Metal trade is feeling the depression keenly. Lake Superior Copper seems to be striving to beat the record of low prices made in the old days of the "Chili Bar sliding scale." It is now offering at 9 $\frac{1}{4}$. Tin is weakening, having sold off during the week to 18.20¢ spot. Lead is dull at 8.30¢, and Spelter has dropped to 3.80¢, delivered. Tin Plates are dull, irregular and lower.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St.,
PHILADELPHIA, Pa., August 15, 1893.

The situation has not undergone much change from last week, although there are indications of a steadier feeling, and in some quarters a disposition to negotiate for new business. The amount actually closed is very trifling, however, so that there is still room for reserve before announcing any decided evidences of improvement. Nevertheless, things are looking better, and there are, doubtless, good grounds for believing that we have seen the worst and that whatever change there is will continue to be for the better. Prices of everything are at the lowest, but it is not reasonable to suppose that they can be any other. The first thing must be the offer of business, the next satisfactory arrangements as to payment, and then, if all goes well, it will be in order to quote better prices. The first stage has been reached, the second is passing off as well as could be expected, the third remains for the future developments. On the whole the past week may be regarded as not unfavorable compared with several immediately preceding, while in regard to the future the indications are mostly of a character that should encourage hopefulness.

Pig Iron.—The movement is unusually light, but in view of the general surroundings, it is perhaps as large as could be expected. Furnaces are not accumulating stock to any extent, neither are they making many new sales, deliveries being chiefly to fill former engagements. Inquiries are being made for additional quantities, but they have not resulted in much business, as neither side is particularly anxious to enter into new engagements. Consumers are not confronted with probabilities of heavy requirements, and as producers have cut down their output to small proportions, they too are in a position to await developments. Besides this, financial considerations have to be dealt with, the general outcome being a determination to follow conservative lines. Ultimately, it is believed that prices will make a sharp advance, as the curtailment in supply is bound to result in scarcity sooner or later. Things may run along in their present condition longer than people are inclined to expect, but be the time long or short, prices are liable to develop strength when the turn does come. Meanwhile sales continue to be made at about last week's figures, which are usually as follows for Philadelphia and equivalent points, with spot cash transactions at 25¢ @ 50¢ less, according to circumstances.

| | | | |
|--|---------|---|---------|
| American Scotch, No. 1X... | \$18.00 | @ | ... |
| American Scotch, No. 2X... | 15.00 | @ | ... |
| Standard Penna. (Lake Ore), No. 1X..... | 14.75 | @ | \$15.25 |
| Standard Penna. (Lake Ore), No. 2X..... | 14.00 | @ | 14.50 |
| Standard Virginia, No. 1X... | 14.50 | @ | 14.75 |
| Standard Virginia, No. 2X... | 13.75 | @ | 14.00 |
| Virginia and Southern, No. 1X, Soft..... | 14.00 | @ | 14.25 |
| Virginia and Southern, No. 2X, Soft..... | 13.00 | @ | 13.25 |
| Standard Penna. and Virginia Forge..... | 13.00 | @ | 13.25 |
| Ordinary Forge..... | 12.50 | @ | 12.75 |

Bessemer and Low Phosphorus Pig.—Business continues to be on a very limited scale, but as production is also at a low point, the supply is not in excess of the demand. Standard Bessemer is quoted at \$16 @ 16.25, delivered, and Low Phosphorus at \$18.25 @ \$18.50, with sales in small lots at prices named.

Steel Billets.—Consumers are doing so little that they have not found it nec-

essary to make new purchases. Manufacturers quote \$23.75 @ \$24, delivered, for Eastern Steel, and \$23.25 @ \$23.50 for Western, but no business of any account has been done, although there is little doubt that liberal concessions could be had from these figures—providing the right kind of an offer was made. So far there seems to be very little disposition to either buy or sell, as neither side is likely to offer terms which would be acceptable to the other.

Muck Bars.—Nothing doing, asking prices being \$22.50 @ \$23, delivered.

Bars.—There is nothing beyond the usual run of small orders, which are taken at extremely low figures, say 1.60¢ for first-class Iron in carload lots, city delivery, and 1.65¢ for broken lots. At interior points 1.50¢ @ 1.55¢ is quoted, but the supply of orders is much below what is necessary to keep the mills moving, even on single turn. At present there is nothing in sight to indicate any marked improvement, as consumption in many directions is gradually falling off, so that even with a little improvement in the general demand it will be hard work to sustain present quotations. Steel Bars are quoted 1.55¢ @ 1.75¢, according to quality.

Skelp.—There is a little more inquiry, and one or two sales, but the amount entered is not important, notwithstanding the fact that 1.50¢, delivered, is accepted for Grooved, with close terms of settlement.

Plates.—This branch of business keeps up fairly considering the general depression. Some of the mills manage to run pretty nearly full, others are doing comparatively little, but there is enough small business around to give at least some appearance of activity. Prices are dreadfully low, and on lots of a few hundred tons each, we should be afraid to say what would be accepted, but certainly any price hitherto paid would be gladly accepted to day, providing the order and the terms of settlement were in all respects gilt edged. Small lots are quoted about as follows :

| | Iron. | Steel. |
|------------------------|--------------|--------------|
| Tank Plates.... | 1.80 @ 1.85¢ | 1.70 @ 1.75¢ |
| Bridge Plates..... | 1.75 | @ 1.80¢ |
| Shell..... | 1.90 | @ 2.10¢ |
| Flange..... | 2.70 @ 2.90¢ | 2.20 @ 2.40¢ |
| Fire Box..... | 3.00 @ 4.00¢ | 2.50 @ 2.70¢ |
| Special qualities..... | 3.25 | @ 3.75¢ |

Structural Material.—There is very little new business coming in, and specifications on old contracts are not sent in as promptly as could be desired, so that the feeling at the mills is rather gloomy. Some work has been postponed owing to the impossibility of financing for it, but with easier money this difficulty may soon pass away, but the outlook for new business is not good. Quotations for small lots are nominally as follows (delivered), but concessions could be had on good-sized orders: Beams, Channels or Tees, 1.80¢ @ 2¢, according to size of order; Angles, 1.75¢ @ 1.80¢; Universal Plates, 1.70¢ @ 1.75¢.

Sheets.—Mills have accumulated a good deal of stock, and there is no demand of any account. Manufacturers have cut down the working time to about one-half of what is usual at this season of the year. There is no such thing as regular market prices; all depends on how much is wanted, what quality, and how to be paid for. Small lots of best makes are quoted nominally as follows, but on large orders very liberal concessions can be obtained :

Best Refined, Nos. 14 to 20.... 2.75¢ @ 2.85¢
 Best Refined, Nos. 21 to 24.... 2.90¢ @ 3.00¢
 Best Refined, Nos. 25 to 26.... 3.15¢ @ 3.20¢
 Best Refined, No. 27..... 3.30¢ @ 3.40¢
 Best Refined, No. 28..... 3.40¢ @ 3.50¢
 Common, $\frac{1}{4}$ ¢ less than the above.

Quotations given as follows are for the best Open-Hearth Steel, ordinary Bessemer being $\frac{1}{4}$ ¢ @ $\frac{1}{4}$ ¢ lower than above named:

Best Soft Steel, Nos. 14 to 16.... 2½¢ @ 2¾¢
 Best Soft Steel, Nos. 18 to 20.... 2½¢ @ 3¢
 Best Soft Steel, Nos. 21 to 24.... 3¼¢ @ 3½¢
 Best Soft Steel, Nos. 25 to 26.... 3½¢ @ 3¾¢
 Best Soft Steel, Nos. 27 to 28.... 3¾¢ @ 3¾¢
 Best Bloom Sheets, $\frac{1}{4}$ ¢ extra over the above prices.
 Best Bloom, Galvanized, dis.... 70 and 5% @ 70 and 10%

Old Material—The demand is very light, although business could be done if holders would accept four months' paper, but as this is difficult to negotiate it is thought best to hold on to the stock. Cash buyers, however, can obtain concessions from the usual asking rates, which are about as follows: Old Iron Rails, \$16 @ \$16.50, delivered; Old Street Rails, \$18 @ \$19; Old Steel Rails, \$13.50 @ \$14; No. 1 Railroad Scrap, \$13 @ \$14, delivered; \$7 @ \$8 for clean new No. 2 Light Scrap; \$11 @ \$12 for Machinery Scrap; \$10 @ \$11 for Wrought Turnings; \$7 for Cast Borings, and \$13 for Old Car Wheels.

Chicago.

(By Telegraph.)

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, August 16, 1898.

A notable feeling of hopefulness is springing up on all sides despite the general stagnation in trade and the rather dim prospect of an early improvement. Financial matters are getting into somewhat better shape, which inspires the belief that with easier money business will revive. The scarcity of currency reported in other sections of the country is not felt here. This is credited to the World's Fair, which is now attracting large numbers of people from remote distances, who bring currency with them.

Pig Iron.—Agricultural implement manufacturers are the only consumers now buying Pig to any extent. Some fair sales of Southern Coke have been made to them in the past week. General foundrymen are buying sparingly, but inquiries are being made which may lead to business soon. The usual car-load trade has been interfered with by sales at very low prices of stocks held by bankrupt foundries. These stocks were not large and are now well out of the way. The Malleable Iron Work Syndicate are understood to be feeling the market on Lake Superior Charcoal and are likely to purchase heavily when they decide to close. Quotations are unchanged, but are still subject to concessions for prompt cash and immediate shipment. We quote as follows:

| | |
|-------------------------------|-------------------|
| Lake Superior Charcoal..... | \$18.00 @ \$18.25 |
| Local Coke Foundry, No. 1.... | 13.50 @ 14.00 |
| Local Coke Foundry, No. 2.... | 12.75 @ 13.00 |
| Local Coke Foundry, No. 3.... | 12.50 @ 12.75 |
| Local Scotch..... | 14.00 @ 15.00 |
| Ohio Strong Softeners..... | 15.75 @ 16.25 |
| Southern Silvery, No. 1..... | 14.50 @ 14.50 |
| Southern Silvery, No. 2..... | 14.00 @ 14.00 |
| Southern Coke, No. 2..... | 12.60 @ 12.85 |
| Southern Coke, No. 3..... | 12.10 @ 12.25 |
| Southern, No. 1, Soft..... | 12.60 @ 12.85 |
| Southern, No. 2, Soft..... | 12.00 @ 12.25 |
| Southern Gray Forge..... | 11.50 @ 12.00 |
| Tennessee Charcoal, No. 1.... | 16.00 @ 16.50 |
| Alabama Car Wheel..... | 18.85 @ 18.85 |
| Coke Bessemer..... | 14.50 @ 15.00 |
| Hocking Valley, No. 1..... | 15.25 @ 15.50 |
| Jackson County Silvery..... | 16.50 @ 17.00 |

Bars.—The season contracts placed thus far fall much below their usual number. The very large consumers were expected to influence the others

when they bought, but for various reasons their example has been followed rather slowly. Every week, however, sees some business placed of this character. During the past week several such contracts were closed. They are running to Steel more than ever. Some buyers have taken all Steel this year who up to the present have exclusively used Iron. Prices on mill lots are a little stronger, although quotations are still 1.45¢ @ 1.50¢, half extras, Chicago delivery, on Bar Iron and 1.60¢ @ 1.65¢ on Soft Steel. Jobbers report a good demand from a class of consumers they do not usually reach when mills are running; but stocks are by no means broken and it will be some time at the present rate of consumption before they run low. Small lots from stock are selling at 1.70¢ @ 1.75¢ for Iron or Soft Steel.

Other Manufactured Iron and Steel.—The demand for Beams and other Structural Material is still confined to small lots from stock, but the Calumet Club and the Ilion buildings are soon to be let and will arouse some interest in the trade. Tubes are quite active, as they are needed for repair work, which is more extensively done now than in good times, comparatively speaking. Light Sheets are very quiet, and local mills are still shut down for lack of business. Galvanized Iron is going out of warehouse freely, but mill orders are scarce. Merchant Steel has been more active recently, with numerous season contracts being closed, mainly for specialties, while Tool Steel is very quiet. Prices of mill shipments, Chicago delivery, may be quoted as follows: Beams, 1.75¢ @ 1.90¢; Tees, 1.95¢ @ 2.05¢; Angles and Universal Plates, 1.75¢ @ 1.80¢; Tank Steel, 1.75¢ @ 1.85¢; Shell Steel, 2.05¢ @ 2 15¢; Flange Steel, 2.20¢ @ 2.30¢; High Grade Fire Box, 2 75¢ @ 5¢; No. 27 Common Black Sheets, 2.80¢ @ 3¢; Juniata Galvanized Iron, 70 and 10 and 5% discount; Sheet Copper, 30 and 35% off, according to quantity; Smooth Finished Machinery Steel, 1.90¢ @ 2¢; Open-Hearth Spring and Smooth Finished Tire, 2¢ @ 2.10¢; Iron Finished Steel Tire, 1.70¢; Ordinary Tool Steel, 6¢ @ 7¢; Special Tool Steel, 12¢ and upward.

Rails and Track Supplies.—Rail orders are very few in number and small in size, but the South Chicago Works are able to continue in operation. Prices are unchanged at \$30 @ \$32, according to quantity. Splice Bars are still held at 1.60¢ @ 1.65¢; Track Bolts with Hexagon Nuts, 2.55¢ @ 2.60¢; Spikes, 1.85¢ @ 1.95¢.

Old Rails and Car Wheels.—Nothing is doing in Old Iron Rails, and it is hard to get a quotation. Consumers say \$14 is as much as they would give on a trading basis. Old Steel Rails are stagnant. Old Car Wheels could be bought at \$13.50, but there are no buyers.

Scrap.—Heavy Cast has been sold at \$8, but no transactions are reported in Wrought. Nominal selling prices per net ton are as follows: No. 1 Forge, \$10.50; No. 1 Mill, \$8; Sheet Iron, \$5; Pipes and Flues, \$7.75; Axles, \$18; Horseshoes, \$12; Fish Plates, \$14.50; Spikes and Bolts, \$12.50; Cast Borings, \$5.25; Wrought Turnings, \$7.25; Axle Turnings, \$9; Heavy Cast, \$8 @ \$9; Stove Plate, \$8; Malleable Cast, \$8; Mixed Steel, \$9, gross ton; Leaf Steel, \$16.

Metals.—Lake Copper in carloads is now quoted 10.25¢; Casting Copper, 9.75¢. Quite a lot of Scrap Copper

has recently been sold here for export to Germany by the Swarts Iron & Metal Company. Spelter is quoted 8.75¢.

E. S. Jackman, 901 The Rookery, Chicago, has been given general supervision of Park, Bro. & Co.'s Western business, comprising the branch houses at Detroit, Chicago, St. Louis and Denver. Each branch house now has a manager, whose duties are by no means interfered with, nor are their powers curtailed, by this arrangement, but they are thus brought into harmonious relations with one another, and conflicts of jurisdiction over new business are avoided. Supervision of this character has heretofore been exercised directly from headquarters in Pittsburgh. The appointment thus made is a recognition of the ability shown by Mr. Jackman in conducting the business of branch Steel houses. This new arrangement, which Mr. Jackman has personally made, will not interfere with the business of the Edwin S. Jackman Company in handling the railroad business of Park, Bro. & Co.

St. Louis.

(By Telegraph.)

Office of *The Iron Age*, Bank of Commerce Building, ST. LOUIS, August 16, 1898.

Pig Iron.—There is no practical change to note either in price or demand. Consumers are satisfied to follow the policy adopted some two months back of buying only as their needs demanded. This they continue to do, and are not tempted to change this policy even by the offer of lower prices. Notwithstanding that there is no increased business to report, there is steadily gaining ground the opinion that the situation is improving. While prices are low and only a moderate business is doing, yet the feeling of nervous anxiety concerning the financial condition of every customer who orders a bill of goods is being dispelled, and while this in itself does not amount to very much, it will gradually lead to a general improvement throughout the entire line, and a gradual restoration of confidence will naturally ensue. The tremendous decrease in production has opened the eyes of consumers to the fact that they may yet find themselves face to face with a scarcity; at the moment this, of course, is not likely to happen, but with a gradual improvement in the demand and a continued decrease in production, the situation will be radically different. We quote as follows for cash, f.o.b. cars St. Louis:

| | |
|---------------------------------------|-------------------|
| Southern Coke, No. 1 Foun-dry..... | \$13.25 @ \$13.50 |
| Southern Coke, No. 2 Foun-dry..... | 11.75 @ 12.00 |
| Southern Coke, No. 3 Foun-dry..... | 11.25 @ 11.50 |
| Southern Gray Forge..... | 10.75 @ 11.00 |
| Southern Car Wheel..... | 18.00 @ 19.00 |
| Lake Superior Car Wheel.. | 16.75 @ 17.25 |
| Ohio Softeners..... | 15.75 @ 16.50 |
| Missouri Charcoal, No. 1 Foundry..... | 12.75 @ 13.25 |

Bar Iron.—The demand for Bar Iron shows some slight improvement. The principal feature noticeable is the broken condition of stocks in jobbers' hands, which enables them to get full prices on sizes most needed and which are at the same time scarce. Mills are not urging trade, but sell largely for cash. Mills quote 1.45¢ @ 1.50¢, f.o.b. cars East St. Louis, according to the size of the order. Jobbers ask 1.60¢ for small lots from store.

Barb Wire.—There is no improvement to note in Barb Wire. The demand is light and while \$2 is the nominal quotation for carload lots of Painted this price is shaded and \$1.90 @ \$1.95 is quoted. Galvanized commands the usual 40¢ per hundredweight advance over Painted.

Wire Nails.—The demand for Wire Nails is extremely light and prices unchanged. We hear considerable regarding an agreement to be made among the Nail mills, but at this writing nothing definite has been done. Jobbers complain that mills are unable to fill their orders in full, being short on a large number of sizes. This will doubtless mean an early resumption by the mills. Mills quote \$1.50 in carload lots to jobbers.

Rails and Track Supplies.—There is no demand for Steel Rails, and prices are purely nominal at \$30.50 @ \$31.50, according to quantity. Track Supplies are unchanged. Splice Bars, 1.70¢; Spikes, 1.90 @ 2¢; Bolts, Square Nuts, 2.50¢; with Hexagon Nuts, 2.60¢. Old Iron Rails are quoted at \$16.

Pig Lead.—Business fails to show any increase, although prices are a trifle firmer at 3.07½¢, at which price some few sales are reported. The consumptive demand is light, however, and any improvement in price is hardly probable until the demand picks up.

Spelter.—Another break is noted in this metal, which is now selling at 3.50¢. Several carloads having been sold at this price, there does not seem to be any reason why lower prices should not prevail, as the stocks of unsold Spelter are heavy and the demand is lighter than it has been for years.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts., CINCINNATI, August 15, 1893.

The Pig-Iron market grows worse, if possible. The volume of business is considerable and there is little inquiry for round lots of any grade. There have, however, been some sales of No. 2 Foundry for delivery monthly during the remainder of this year at \$8.50 per ton, f.o.b. Birmingham, but not to any large extent, and while furnaces are indifferent about selling at this price, there are few buyers. This Iron has been sold for spot cash at 25¢ per ton less, but while any price might be accepted by a needy furnace for cash in hand, there appears to be less urgency to sell, probably because there is less Iron being made, but there is an ample supply for the greatly reduced demand. There have been some sales of the lower grades of Tennessee and Alabama Charcoal Iron at reduced prices, but there is no demand for Car-Wheel Iron. The Iron factors are generally devoting their energies to bringing their customers over their financial difficulties, for collections are reduced to almost nothing and the great bulk of the maturing paper has to be renewed. In this district there are no buyers of Iron beyond carload lots and quotations are not much better than nominal. We quote as follows:

Foundry.

| | |
|--|-------------------|
| Southern Coke, No. 1..... | \$12.75 @ \$13.00 |
| Southern Coke, No. 2..... | 11.25 @ 11.50 |
| Southern Coke No. 3..... | 10.75 @ 11.00 |
| Ohio Soft Stone Coal, No. 1..... | 15.50 @ 16.00 |
| Ohio Soft Stone Coal, No. 2..... | 14.50 @ 14.75 |
| Lake Superior Coke No. 1..... | 15.00 @ 15.25 |
| Lake Superior Coke No. 2..... | 14.00 @ 14.25 |
| Hanging Rock Charcoal, No. 1..... | 18.50 @ 19.00 |
| Hanging Rock Charcoal, No. 2..... | 17.50 @ 18.00 |
| Tennessee and Alabama Charcoal, No. 1..... | 14.00 @ 14.25 |

| | |
|--|---------------|
| Tennessee and Alabama Charcoal, No. 2..... | 13.00 @ 13.25 |
| Forge..... | 10.25 @ 10.50 |
| Gray Forge..... | 10.00 @ 10.25 |
| Mottled Coke..... | |
| Car Wheel and Malleable Irons. | |
| Standard Southern Car Wheel..... | 17.75 @ 18.00 |
| Lake Superior Car Wheel and Malleable..... | 17.00 @ 17.25 |

Pittsburgh.

(By Mail.)

Office of *The Iron Age*, Hamilton Building, PITTSBURGH, August 15, 1893.

Nothing has occurred during the week that would show that there has been any improvement in the situation, even to the slightest degree. Business is being restricted more and more and terms are getting closer to a cash basis, many concerns refusing to sell only on 10 days or 2% off for cash. There has been no material change in prices during the week, and there is not enough business being done to thoroughly test the market. There is still a woful lack of confidence between buyer and seller and until this has been removed no improvement can be expected.

Pig Iron.—There is practically no market, a few small sales taking place occasionally to meet immediate requirements of buyers. Pig Iron makers are averse to selling their product on long time, and buyers have not the money to pay for it on delivery or in ten days, and the result is that production has been reduced very largely already by both Pittsburgh and valley furnaces, and it will be still further cut down before this month is out. Bellaire Furnace of the Bellaire Nail Works was banked this week, as the firm have enough Iron to run them for some time after their Steel plant has resumed. Not since the long Coke strike of two years ago or more has the production of Pig Iron in this district been so low as it is at the present time. Notwithstanding this, it is safe to say that production is still considerably ahead of consumption, so that further restriction in production is absolutely necessary. Furnace operators are not pushing their Iron on the market, but when a chance presents itself to turn some Iron over for cash, it is done, even though the buyer has come pretty close to naming the price. Foundry and Mill Irons are dull and neglected, due to the closing of so many mills and to the curtailing of operations among the foundries. We quote as follows:

| | |
|-----------------------------|--------------------------|
| Neutral Gray Forge..... | \$11.75 @ \$12.00, cash. |
| All-Ore Mill..... | 12.00 @ 12.25 |
| Bessemer Pig..... | 12.50 @ 12.75 |
| No. 1 Foundry..... | 13.00 @ 13.25 |
| No. 2 Foundry..... | 12.00 @ 12.25 |
| Charcoal Foundry No. 1..... | 15.00 @ 16.00 |
| Charcoal Foundry No. 2..... | 14.00 @ 15.00 |

Reports are going of sales of Bessemer and Gray Forge at less than the above prices, but if made, they were under forced conditions and do not represent actual ruling prices.

Ferromanganese.—We are not advised of any transactions in this market either in foreign or domestic for several weeks past, and we make nominal quotations of \$57 @ \$57.50 for 80%, f.o.b. cars Pittsburgh.

Billets.—There is no improvement in demand and production has been further restricted by the shutting down for a temporary period of the Duquesne Steel Works, thus taking out of the market very close to 1000 tons per day. There are only two Steel plants in this city that are doing anything at all, and these are not being operated to anything like their full capacity. In the Wheeling district everything is closed, but it

is intimated that one or two concerns will probably start up on single turn within a very short time. Under existing conditions, it is next to impossible to correctly quote the market, makers asking all the way from \$20.50 to \$21 at mill, according to order and terms of payment.

Structural Material.—The situation is unchanged from that noted last week. Of the three concerns in this city making Structural Shapes, one is closed and the other two are operating their plants to half capacity or less. Some old contracts are yet unfilled, and specifications on some of these have come in within the last week or two. There is very little new work in sight, and the call now is for small lots altogether. While we repeat quotations of last week, it is probable that for a good-sized order with satisfactory terms to seller these would be shaded somewhat. We quote as follows: Beams up to 15 inches, 1.50¢ @ 1.60¢, f.o.b. cars Pittsburgh; Angles and Universal Plates, 1.60¢ @ 1.70¢; Tees, 1.60¢ @ 1.70¢, and Z-Bars 1.60¢ @ 1.70¢.

Muck Bars.—We are not advised of any transactions during the past week. Considerable Muck Bar made by concerns west of Pittsburgh has been sold in this market, but this has been withdrawn to considerable extent. Some sales of this Bar were made as low as \$21.50, Pittsburgh, while best grades of city-made Bars are held at \$22.50, delivered at buyer's mill.

Rods.—As noted elsewhere, a number of Wire-Nail concerns have started up their plants on single turn, and should they continue in operation it will probably have the effect of improving the demand for Rods. In the absence of sales we quote the market at \$37.50, Pittsburgh.

Plates.—Business seems to be getting duller as far as demand is concerned, and during the week one large maker in this city closed down temporarily, and another is operating to about half capacity. Business coming in falls far short of being sufficient to keep the mills in full operation. We repeat quotations of last week, as follows: Tank, 1.50¢ @ 1.60¢; Shell, 1.65¢ @ 1.75¢; Flange, 1.75¢ @ 1.90¢; Ordinary Fire Box, 2.25¢ @ 2.50¢; Special, 3¢ @ 3.50¢.

Merchant Steel.—There is nothing new to report this week, the demand being very light, with no immediate prospects of improvement. It is not expected that the action of the Linden Steel Company in asking for an extension will seriously affect the market one way or the other. We quote Open-Hearth Spring and Tire at 1.90¢ @ 2¢, and Machinery at 1.90¢; Tool Steel we quote at 5½¢ and upward, according to quality, and special brands at 15¢ and upward.

Wire and Cut Nails.—It is stated that the Wire-Nail manufacturers have about completed the pooling arrangement to which reference has already been made. Standard prices have been established in the different large cities, the price in carload lots from Pittsburgh and Cleveland being put at \$1.50, going into effect to-day (Tuesday). The Consolidated Steel & Wire Company have resumed operations, but not to full capacity, while the Salem Wire Nail Company have started up the Salem works on single turn. Their Findlay factory is still idle. There is a fair demand for Cut Nails, with prices un-

changed at \$1.05 base in carload lots at factory.

Pipes and Tubes.—Beyond a fair demand for the smaller sizes of Pipes, there is no business doing in this department. The scarcity of money has prohibited natural gas companies from laying new mains, and as a result there is no demand for the larger sizes of Pipe. However, it is expected that with the development of new territory and easing up in the money market there will be a good demand for the larger sizes of Pipes along toward fall. Part of the plant of the American Tube & Iron Company at Middletown, Pa., has been started up, while at the works at Youngstown, Ohio, a general sorting up of sizes is going on for the purpose of filling orders, although no Pipe is being made as yet at this plant.

Wire—There is more activity among the Wire mills, and we are advised that there is a very fair demand, confined to carload lots and less. The shut down of so many plants during July and part of August has reduced stocks very much, and prices are considerably firmer. We quote the market at \$2.32½ @ \$2.35 for Four-Point Galvanized, and \$1.92½ @ \$1.95 for Painted, in carload lots. Plain Wire is ruling at \$1.60 in carload lots, and \$1.80 in less quantities.

Sheets.—The demand continues quiet, and, as noted last week, none of the mills are in full operation, while some are closed entirely. A good many contracts made early in the year for shipment about this time have been shaved down fully one half, while some few have been countermanded altogether. We quote Common Box Annealed Sheets at 2.45¢ for No. 24, 2.55¢ for No. 26, and 2.65¢ for No. 27. For Soft Steel Sheets from 5¢ to 10¢ additional per 100 lb on above prices is charged. There is a good demand for Galvanized Sheets, and we quote these at 70 and 10 and 5% discount in carload lots.

Bars.—Trade does not seem to improve any, and there is no disposition being shown among the mills now idle to resume operations. There are probably a dozen concerns in this city operating their plants to half capacity or less, while in the Mahoning Valley district everything is closed down with one or two exceptions. A scarcity is reported in certain sizes, and on the whole prices are showing a firmer tendency. We quote Steel Bars at 1.50¢ @ 1.55¢, Bar Iron extras. In the Mahoning Valley Bars are held at 1.40¢ @ 1.45¢, half extras, at mill.

Coke.—For the week ending August 5 shipment of Coke from the Connellsville region decreased about 1000 cars, and production fell almost 20,000 short of the previous week, while a reduction in the number of active ovens was also made. At the present time not more than one third of the ovens in the Connellsburg region are in blast, and a number of these will be blown out within a short time unless there is an improved demand for Coke. For the week ending on the above date there were 6735 ovens in blast and 10,598 idle, with a total estimated production for the week of 49,510 tons. Compared with the production of the previous week this was a decrease of 19,822 tons. On account of the blowing out of so many blast furnaces there is little or no demand for Furnace Coke. It is still being offered at \$1.25 in tons of 2000 lb, f.o.b. cars in Connells-

ville region. Foundry Coke is being offered at \$1.50 to dealers and \$1.65 to consumers.

Boston.

Office of *The Iron Age*, 146 Franklin St., Boston, August 15, 1893.

The feature in the Iron market is a continuation of the extreme caution previously noted. Foundrymen, machinists and manufacturers are allowing their stocks of material to run very low, anticipating a shut down of more or less duration. On the other hand, there are occasional orders that they have not anticipated; these very orders coming from the extreme conservatism that other branches of the trade have been practicing. Business is not wholly suspended, in the working of Iron, but everybody seems to talk as though they were meaning to be ready to stop work if the condition of affairs should demand a suspension. In the meantime it is pretty certain that there is some improvement to note financially, and that nothing is wanting but a return of confidence to make a brisk market for merchandise.

Pig Iron.—Dealers and agents note a very small business in Pig Iron. The foundrymen are giving few new orders, and in some instances they are glad of any sort of an opportunity to "stave off" the delivery of Iron bought some time ago, or even to cancel the order altogether. Still, the foundries are not all closed down, but it is evident that those running are drawing from stocks of Iron bought previously, and not replenishing these stocks, for the reasons mentioned above. Southern Pig Iron, ex-dock in Boston, is quoted at: No. 1, \$15 @ \$15.50; No. 2, \$14 @ \$14.50; No. 3, \$13 @ \$14. Virginia Iron is in some demand, with the quotations at \$15.50 for No. 1, and \$14 @ \$14.50 for No. 2. Pennsylvania Iron is very dull in this market. Quotations for Iron at shipping port are at: No. 1, \$14.50 @ \$15; No. 2, \$13.50 @ \$14; Gray Forge, \$13 @ \$13.50. There is a quiet trade in Ohio Irons, with this market quoted at \$17 @ \$17.50 for Iron laid down in Boston.

Bar Iron.—The market is quiet in Bar Iron. Manufacturers are not calling for Iron, fearing a shutting down of their works. At the same time the New England rolling mills have a few orders on which they are at work, but it does not look favorable for new orders. New England Old Material Bars are not changed in prices, in spite of the dull trade, but are nominally quoted at 1.60¢ @ 1.65¢ from mill; from store, 1.65¢ @ 1.75¢. Best Bars, from Puddled Iron, continue to be quoted at 1.80¢ @ 1.90¢ from mill, and at 1.95¢ @ 2½¢ from store. Norway Bars are quiet and steady at \$66 @ \$70 per ton, including Shapes.

Building Iron.—Trade is light in Building Iron. Buildings are being completed, but no new buildings are being projected at present. On the contrary, several schemes involving a good deal of Iron have lately been suspended for the present. The bridge builders are finishing up old contracts, and this will take some of them till well into the autumn, but they are making no new contracts. The quotations are nominally unchanged at: Beams and Channels, from mill, 1.85¢ @ 1.95¢; from store, 2½¢ @ 2½¢; Tees, 2.10¢ @ 2½¢ from mill; from store, 2.40¢ @ 2.60¢; Angles, 1.80¢ @ 1.90¢ from mill; from store, 2½¢ @ 2.35¢.

Steel, Steel Plates and Steel Rails.

The demand for Merchant Steel is rather irregular. At first impression it would seem that trade must be extremely dull, and this is true, so far as manufacturers of Iron goods are concerned. But the stopping of cotton and woolen mills and other factories has made a good deal of repairing for the machinists, and in some cases they have been caught without the material on hand. In one case a big machine-shop concern have been obliged to take a large amount of cold-rolled shafting for one of these repair jobs, not daring to wait for the shafting to be turned up on their own lathes. This shafting was sold by a representative house here. But in other cases important orders for Iron and Steel, or what was promising to develop into orders, have been dropped. One prominent concern of car builders were figuring on something like 1000 cars, to be built at once, and were ready to negotiate for the Iron and Steel. But the railroad shut the order short off the other day. Later it has ordered 100 cars of the 1000. The quotations on Steel are nominally steady at: Bessemer Steel, 2¢ @ 2.10¢; Tire and Sleigh Shoe, 1.90¢ @ 2¢; Sheet, 2½¢ @ 2½¢; American Cast, 6½¢ @ 7¢; English Cast, 13½¢ @ 15¢; American Steel Rails, \$29 at mill. It may be interesting to note that the Pottstown Iron Company furnished the Steel for the construction of the cup-defending yachts. The Steel for the "Jubilee" was furnished by the Boston office of that company to the Geo. Lawley & Sons Corporation, builders. The other boats were built by the Herreshoffs, and their orders for Steel were placed with the New York office of the above Iron company. Plate Iron is quoted at: Tank, 1.80¢ @ 1.90¢; Shell, 1.85¢ @ 1.95¢; Refined, 2.05¢ @ 2.10¢; Fire Box, 2½¢ @ 2½¢.

Nails.—There continues to be a fair trade in Nails, considering the dullness of other branches of the Iron industry. Prices are very steady. Cut Nails, both Iron and Steel, are quoted at \$1.40 per keg in round lots, and at \$1.45 @ \$1.50 for small lots. The recent advance in Wire Nails is claimed to be sustained, the jobbers here asking \$1.75 per keg.

Pipe and Tubes.—The trade in Pipe is better than it is in some branches of Iron. Water works planned early in the season are being pushed to completion. The laying of new Pipes for the Brookline Gas Company in Boston is taking a good deal of Pipe. Besides there is considerable doing in the way of steam fitting in the new buildings that have been erected this season. The Pipe card is not changed; neither are the manufacturers pressing the sale of Pipe as hard as might be expected. The suspension of some of the Tube mills renders the position of Tubes fairly firm, with 3-inch and above quoted at 67½% off from the list, and 2½-inch and under at 65% off.

Scrap Iron.—The market on Scrap Iron is very dull. The possible stopping of some of the rolling mills that are users of Scrap does not have a strengthening effect on the market. No. 1 Wrought is still quoted at 50¢ @ 55¢, with choice selections and Old Horseshoes quoted at 55¢ @ 60¢. Machine Shop Cast Scrap is quoted at 50¢ @ 55¢ for the best lots. Light Iron is dull at 30¢ @ 40¢, as to quality. Cast Turnings and Borings are quoted at 25¢ @ 30¢, with Wrought at 30¢ @ 35¢.

Cleveland.

CLEVELAND, OHIO, August 14, 1898.

The business situation has been slightly improved by the almost universal adoption by the manufacturers and business firms of the system of paying in checks instead of currency, and by the rule adopted by all local banks requiring 60 days' notice before deposits can be withdrawn. Business is dull, but Cleveland has fewer failures than any city of its size in the Union, and there is less distress here. This is in a measure accounted for by the fact that not a single banking institution in Cleveland has manifested any disposition to suspend payments. This has served to preserve confidence. There was talk of a meeting of the city's unemployed, but the idea was discouraged even by the workingmen themselves. Wages are being cut, and it is said to be due to this fact that some business in the Pig-Iron market can be recorded this week.

Iron Ore.—An indication of the present condition of the market may be gathered from the fact that vessel owners—not all of them, it is true, but a large number—are jumping at the chance to carry Ore from Escanaba to Ohio ports at 40¢ per ton and from Ashland at 50¢. This is something of a decline from the rates talked of at the beginning of the season, viz.: Escanaba 95¢, Marquette \$1.10 and Ashland \$1.25. Only a very small amount of Ore has come down from Lake Superior since our last report. Many Ore-carrying vessels have tied up for the season—an unprecedented event in midsummer. Only a very small amount of Ore was sold during the past week, a few thousand tons of Bessemer Hematites going at \$3.50 @ \$3.70, and some non-Bessemer at figures below \$2.75 per ton. The movement to the furnaces was also weak, but little effort being made to relieve the docks of their burden. Reports are received of more mines closing down and of cuts in wages. Just where all this is to end is something very puzzling to mine owners and dealers alike.

Pig Iron.—The market is far from brisk, although some sales are reported. We hear of a sale of 2000 tons of Bessemer at \$12.75, Cleveland, and of a smaller amount of Foundry Iron, No. 1, at \$13.50. The demand, however, is weak and uncertain. There is said to be some inquiry for Charcoal Iron. It is believed that the great reduction in production will soon have an effect upon the market. Nominal quotations are:

| | |
|---|-------------------|
| Nos. 1 to 6 Lake Superior Char-coal. | \$15.75 @ \$16.00 |
| Nos. 1, 2 and 3 Bessemer, per ton. | 13.00 @ 13.15 |
| No. 1 Strong Foundry, per ton. | 13.50 @ 14.00 |
| No. 2 Strong Foundry, per ton. | 12.75 @ 13.00 |
| No. 1 American Scotch, per ton. | 14.00 |
| No. 2 American Scotch, per ton. | 13.00 |
| Mahoning and Shenango Valley Neutral Mill Irons, per ton. | 11.50 @ 11.75 |
| Mahoning and Shenango Valley Red Short Mills, per ton. | 11.75 @ 12.00 |

Louisville.

LOUISVILLE, KY., August 14, 1898

There is no selling of Iron, buyers refusing to purchase, the condition of the money market being such that consumers find it impossible to meet in the ordinary way paper already out. Owing to the conditions there is great uncertainty as to the future, and buyers will not purchase or engage Iron for future consumption. This is more true of the West than those portions of the East supplied by Western houses, as there is a fair demand for Southern Iron at those points, and buyers state that

owing to the shutting down of many works those running have an abundance of orders for finished material. There is no demand for Car-Wheel Iron, as most of the car companies have shut down. One of the largest of the Western pipe companies will also close down this week. We quote for cash, cars, Louisville:

| | |
|-----------------------------------|-------------------|
| Southern Coke, No. 1 Foundry. | \$12.75 @ \$13.25 |
| Southern Coke, No. 2 Foundry. | 11.50 @ 12.00 |
| Southern Coke, No. 3 Foundry. | 11.00 @ 11.25 |
| Southern Coke, Gray Forge. | 10.50 @ 10.75 |
| Southern Car Wheel. | 17.50 @ 17.75 |
| Southern Charcoal, No. 1 Foundry. | 15.00 @ 16.00 |

Metal Market.

Copper.—Contraction of work at various large brass manufacturing establishments and in other lines of industry in which Copper is more or less extensively consumed (the outcome of general trade depression) has effectually offset the best efforts of producers to maintain prices by restricting the output. In other words, the demand has fallen off quite as much or more than the supply. Hence, any effort to expedite business leads to weakness in prices, and, while not numerous, such efforts have been sufficient to keep the market weak and unsettled. Lake Superior Ingots is, at present, freely offered at 9½¢. Other varieties are relatively as low, say about 9½¢ for Electrolytic and 9½¢ for common casting stock.

Pig Tin.—Prices for Pig Tin have dropped about 1½¢ per pound under the weight of combination of unfavorable circumstances, not the least among which is pressure by the "bear" interest, which, apparently, misses no opportunity to take advantage of every circumstance that may be turned to their account. New speculative deals have been few in number and invariably on a small scale. Purchases for trade and consumptive account seem also to have been below the average, although sufficient to make quite an impression upon spot supplies. On late dealings the price for spot stock dropped to 18.20¢. August delivery went quite as low and September was offered at 18.35¢. Cables to the Metal Exchange noted that Straits shipments during the first half of August were 1000 tons to Great Britain and 800 tons to the Continent, against a total of 2025 tons during the corresponding period last year.

Pig Lead.—There has been only a very moderate business during the past week. The demand was slow also, and the offering reserved. Such as it was, the little business effected went at about 3.30¢, indicating a fair undertone of steadiness, despite the trying conditions of unusually dull trade.

Spelter.—There has been a drop in price to 3.80¢ @ 3.85¢ for standard Western brands, delivered here or at common point. Comparatively little business went through at the decline, since narrow consumption and monetary conditions, rather than the matter of price, continue to be the guide to operations in a great measure.

Antimony.—Demand continues moderate and prices are rather soft, with quotations on round lots about: 9½¢ @ 9½¢ for Hallett's, 10½¢ @ 10½¢ for L.X., and 10½¢ @ 10½¢ for Cookson's.

Tin Plate.—Dullness is still the conspicuous feature of the market. There are hardly any inquiries for futures and spot stock in other than small quantities is not wanted. Prices are unsettled and irregular, with a decided leaning in buyers' favor, particularly in the in-

stance of ordinary cokes. Spot quotations are about as follows: Coke Tins—Penlan grade, IC; 14 x 20, \$5.25; J. B. grade, do., \$5.30; Bessemer full weight, \$5.25; light weights, \$4.85 @ \$4.87½ for 100 lb. \$4.80 @ \$4.82½ for 95 lb. \$4.75 for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, \$5.60; Siemens Steel, IC basis, \$5.65; IX basis, \$6.75. Charcoals—Melyn grade, IC, \$6.35 @ \$6.37½; Crosses, \$8; Allaway grade, IC, \$5.60; Crosses, \$6.80; Grange grade, IC, \$5.70; Crosses, \$6.85. Charcoal Ternes—Worcester, 14 x 20, \$5.70; do., 20 x 28, \$11.35; M. F., 14 x 20, \$7.35; do., 20 x 28, scarce; Dean grade, 14 x 20, \$5.30 @ \$5.37½; do., 20 x 28, \$10.50 @ \$10.60; D. R. D. grade, 14 x 20, \$5.10 @ \$5.15; do., 20 x 28, \$10.10; Alyn, 14 x 20, \$5.32½ @ \$5.35; do., 20 x 28, \$10.40; Wasters—S. T. P. grade, 14 x 20, \$4.87½; do., 20 x 28, \$9; Abercarne grade, 14 x 20, \$4.87½; do., 20 x 28, \$8.90.

The monthly production of Copper in the United States since July, 1892, has been as follows, the first column giving the aggregate returns from the reporting mines, which include the principal lake, Montana and Arizona producers; the second being the metal from pyrites and from a number of smaller outside sources, being estimated:

| American Product. | | | |
|-------------------|-------------|-------------|--------|
| Reporting | Outside | Total. | |
| | mines. | sources. | Gross |
| 1892. | Gross tons. | Gross tons. | tons. |
| July..... | 9,294 | 924 | 10,218 |
| August.... | 10,807 | 870 | 11,677 |
| September. | 9,710 | 994 | 10,704 |
| October.... | 9,668 | 1,289 | 10,957 |
| November.... | 9,888 | 1,036 | 10,924 |
| December.. | 9,872 | 1,174 | 11,046 |
| Total..... | 59,239 | 6,287 | 65,526 |
| six months. | | | |
| 1893. | | | |
| January... | 9,187 | 989 | 10,176 |
| February.. | 8,213 | 1,042 | 9,245 |
| March.... | 9,065 | 1,321 | 10,386 |
| April..... | 11,775 | 1,042 | 12,817 |
| May..... | 12,706 | 1,042 | 13,748 |
| June..... | 11,524 | 1,042 | 12,566 |
| Total six months | 62,470 | 6,478 | 68,938 |
| 1893. | | | |
| July..... | 11,049 | 1,042 | 12,091 |

The product of the foreign reporting mines and the United States exports were as follows:

| Foreign | United |
|---------------------|-------------|
| reporting | States |
| mines. | exports. |
| 1892. | Gross tons. |
| July..... | 6,358 |
| August..... | 6,888 |
| September.... | 5,478 |
| October..... | 6,476 |
| November.... | 6,789 |
| December.... | 7,666 |
| Total six months... | 39,655 |
| 1893. | |
| January..... | 5,736 |
| February.... | 6,782 |
| March..... | 6,896 |
| April..... | 6,913 |
| May..... | 6,806 |
| June..... | 7,935 |
| Total six months... | 41,048 |
| 1893. | |
| January..... | 3,171 |
| February.... | 3,115 |
| March..... | 2,334 |
| April..... | 3,450 |
| May..... | 4,482 |
| June..... | 5,109 |
| Total six months... | 20,361 |

| 1893. | 1893. |
|--------------|-------|
| January..... | 3,171 |
| February.... | 3,115 |

| 1893. | 1893. |
|--------------|-------|
| January..... | 3,171 |

| 1893. | 1893. |
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| January..... | 3,171 |

| 1893. | 1893. |
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| January..... | 3,171 |

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| January..... | 3,171 |

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Financial.

On the whole, there has been a moderate improvement in the general situation during the week under review. August has thus far witnessed an extraordinary expansion in the available currency, the imports and engagements of gold to date being not less than \$28,000,000, of which \$14,000,000 arrived during the week of August 6 to August 12 inclusive, while \$9,000,000 additional has been engaged and \$3,000,000 is afloat, due to arrive at an early date. In addition thereto over \$17,000,000 of notes have been ordered from the Treasury Department by national banks throughout the country, and the hope is expressed that the Voorhees bill, permitting the national banks to issue circulation up to the limit of their deposits of United States Government bonds up to par, will soon be passed, and thus bring additional relief. Since the 1st inst., there have also come into the money markets about \$4,000,000 from silver purchases by the Government. Altogether this represents a total of nearly \$50,000,000.

In spite of the heavy gold imports, the weekly bank statement on Saturday was decidedly disappointing. Instead of a substantial increase in the surplus reserve, there was a decrease of over \$2,500,000. The explanation is made that the banks are really in a stronger position than is indicated by the statement, because the bulk of the gold which they received arrived late in the week and, therefore, did not affect the averages very much. Another explanation of this seeming anomaly is that the banks on their own account have not received and held the imported gold at all, but that the specie bought abroad some time ago by the banks has been repurchased here at a premium by savings banks, trust companies and private firms and individuals. The fact that money in large quantities was loaned at 6% by others than the banks, and chiefly by the trust companies, indicates that this has been the case.

An increasing use is noticed throughout the country of certified checks for small sums, which circulate in the locality of their issue and take the place of the small bills which have become so scarce. This, the imports of gold, the issue of Clearing House certificates in different financial centers, the taking out of more circulation by the national banks, all tend to counteract the hoarding which has been going on for so long. The high premium at which currency has sold at different times during the past week has had the effect of bringing out a good deal of hoarded money, so that at one time late last week the premium on currency practically disappeared. It has, however, risen again early this week, selling on Tuesday at 2@2½%. The premium on gold in transit, however, has dropped ½ of 1%, which caused a weakening in the sterling exchange of rates. The issue of Clearing House certificates has now reached a total of \$39,000,000 for the New York banks and \$10,500,000 for the Boston banks, although the statement is made by apparently good authority that \$15,000,000 of Clearing House certificates issued by New York banks have never been used.

Among financiers in New York there is a growing sentiment of uneasiness over the delay by Congress in taking action on the Silver Purchasing act and on the strength which the opposition to an unconditional repeal is developing.

The money market has been fairly steady during the week, call loans ranging between 3 and 5%, while time loans have been in demand at 6% on choice securities, with little accommodation offered. Commercial paper has been in poor request, brokers quoting nominally first class double-named, 60 days, 10@12%, and 4 months, 10@12%. Single-named first-class paper commands 12@15%. Foreign exchange has fluctuated considerably during the week, and closes with actual business at \$4.81@\$4.82 for 60 days' bills, \$4.85@\$4.86 for demand and \$4.80@\$4.81 for commercial. Domestic exchange is quoted as follows: Savannah—Buying, ½ discount; selling, par to ½ premium. Charleston—Buying, ½; selling, par. New Orleans—Commercial, \$7.50 dl. count; bank, nominal. Boston—New York funds, 75¢@\$1.50 premium for cash. Philadelphia—In demand at 1½% premium. San Francisco—Sight, 5; telegraph, 15. St. Louis—\$6 discount. Chicago—\$15 discount.

Business at the Stock Exchange has been dull, the feature of the week being the continued selling of Northern Pacific securities, the cause of which was revealed by the announcement on Tuesday that the company had been forced to go into receivers' hands. This event is regarded as particularly unfortunate, since the company had a large floating indebtedness, which must be embarrassing to many creditors, among whom may be quoted sellers of supplies and materials.

During the week the fluctuations have been relatively unimportant, prices of leading stocks comparing as follows on the closing of Thursday, August 10, and the closing on Wednesday, August 16:

| | |
|--------------------------------|--------------|
| American Sugar Ref. | 73 ½ to 73 ¾ |
| Atchison, Topeka & S. F. | 15 ¾ to 15 ½ |
| Balt. & Ohio | 65 to 65 ½ |
| Chicago Gas | 51 ½ to 49 ½ |
| Chic. & N. W. | 96 ¼ to 95 |
| C., B. & Q. | 78 ½ to 76 |
| Chicago, Milwaukee & St. Paul | 54 to 52 ½ |
| Chicago, Rock Island & Pacific | 59 ½ to 57 ½ |
| Del., Lack. & W. | 137 to 135 |
| Genl. Electric | 45 ½ to 42 ½ |
| Lake Shore | 115 to 113 ½ |
| Louisville and Nashville | 54 ½ to 53 ½ |
| Manhattan | 111 to 112 |
| Missouri Pacific | 22 ½ to 21 |
| Minnesota Iron, asked | 60 to |
| Nat. Lead, common | 24 ½ to 23 ¼ |
| N. Y. Central | 98 ½ to 98 |
| N. Y., L. E. & Western | 11 ½ to 11 ¼ |
| Northern Pacific, pref. | 22 to 17 ½ |
| Northern Pacific, common | 7 ½ to 5 |
| Richmond & West Pt. Term. | 1 ½ to 1 ½ |
| St. Paul & Omaha | 28 ½ to 28 ½ |
| Union Pacific | 18 ½ to 17 ½ |
| Western Union | 76 ½ to 76 ½ |

The railroad and miscellaneous bond market has been very quiet, Government bonds closing at 110@111 ½ for 4s.

Silver has weakened, and 60,000 ounces were purchased on Monday at 73 ½¢.

New York.

Office of *The Iron Age*, 96-102 Broadway, New York, August 16, 1893.

Pig Iron.—The volume of current business is very light, and the market continues weak. We quote Northern brands \$14@\$15 for No. 1; \$13.25@\$14.50 for No. 2; \$12.25@\$12.50 for Gray Forge, at tidewater. Southern Iron, same delivery, \$18.75@\$14.50 for No. 1; \$12.25@\$13.25 for No. 2; \$12@\$12.25 for No. 3; \$12@\$12.25 for No. 2 Soft, and \$12.50@\$13 for No. 1 Soft. Gray Forge remains \$11.50@\$12.50.

Spiegeleisen and Ferromanganese.—There has been no business. Ferromanganese is nominally \$55.50@\$56 at tidewater.

Billets and Rods.—The market is very dull. We quote nominally: Domestic Billets, \$23@\$24, and foreign Billets, \$28@\$28.50, tidewater; domestic Wire Rods, \$30@\$31, and foreign Rods, \$39.50@\$40.

Steel Rails.—The market is lifeless and no new orders have been placed. Before the close of the present month all the Eastern mills will find themselves at the end of the orders which it is safe to roll. Unless new work comes up in the interval they will all be idle.

Track Material.—We quote: Spikes, 1.70¢@1.90¢; Fish Plates, 1.45¢@1.60¢; Track Bolts, Square Nuts, 2.25¢@2.40¢, and Hexagon Nuts, 2.40¢@2.50¢, delivered.

Manufactured Iron and Steel.—Nothing of consequence is being done, the mills being confined to delivering on old contracts and taking care of small current orders. The Maryland Steel Company have taken the contract for a steam yacht designed by Mallory for Mrs. T. Carnegie. We quote: Beams up to 15-inch, 1.75¢@2¢; 20-inch, 2.10¢@2.25¢, for round lots; Angles, 1.75¢@1.90¢; Universal Mill Plates, 1.70¢@1.90¢; Tees, 2¢@2.15¢; Channels, 1.80¢@2¢, on dock. Steel Plates are 1.65¢@1.90¢ for Tank; 1.90¢@2.10¢ for Shell; 2¢@2.15¢ for Flange, and 2.50¢@2.80¢ for Fire Box, on dock; Refined Bars are 1.60¢@1.90¢, on dock, and Common, 1.45¢@1.60¢; Soft Steel Bars are 1.50¢@1.70¢; Scrap Axles are quotable at 1.75¢@2.10¢, delivered; Steel Axles, 1.70¢@2¢, and Links and Pins, 1.70¢@1.80¢; Steel Hoops, 1.75¢@1.90¢, delivered; Cotton Ties, 75¢@85¢ per bundle, at mill.

Old Material.—We quote nominally Old Iron Rails at about \$15@\$15.50; Old Steel Rails, \$12.50@\$13; No. 1 Wrought Scrap Iron at \$15@\$15.50, and Car Wheels at \$11.50@\$12.

British Iron and Metal Markets.

[Special Cable Dispatch to *The Iron Age*.]

LONDON, WEDNESDAY, August 16, 1893.

Pig Tin prices have declined about £2. 2/6. Trade demand has been good, particularly for futures, but this was offset by the unfavorable advices from America and pressure to sell on the part of Continental operators. There is hardly any outside local speculative interest. Transactions to-day in Straits were at £78. 7/6@£78. 10/ for prompts and £78. 7/6 for three months' futures.

Copper has ruled somewhat irregular, at a rather lower level of prices. Some buying interest was aroused by reports that supplies from America will be smaller after receipt of heavy quantity on the way. Unfavorable financial situation, however, acted as a restraint later on. The Anaconda Company, it is reported, have disposed of stock here, and now refuse to accept 8/6 for Argentiferous Matte. To-day's quotations on Merchant Bars were £41. 2/6 for prompts, and £41. 10/ for three months'

futures. Best Selected English £45. 15/-.

There has been somewhat better inquiry from America for Tin Plate, chiefly oil sizes, and as makers quote very close prices a good business is expected to follow. Canadian demand has been more active, and several good lines of Cokes were placed. Several works have closed owing to coal difficulty. Stocks at shipping ports are estimated at 268,000 boxes. Liverpool prices are as follows:

IC Charcoal, Alloway grade.....12/9 @ 13/3
IC Bessemer Steel, Coke finish.....11/9 @ 12/3
IC Siemens.....12/0 @ 12/3
IC Coke, B. V. grade, 14 x 20.....11/8 @ 11/9
Charcoal Terne, Dean grade.....11/6 @ 11/9

Pig Lead demand has been light and prices are weaker at £10. @ £10. 2/6 for Soft Spanish.

Spelter has remained very quiet and prices are rather easy, with £17. 10/ quoted for ordinary Silesian.

In the Iron and Steel trades there has been merely a routine trade and prices, while rather weak, show no radical change. Last sales of warrants were at 41/10 @ 41/12 for Scotch, 35/ for Cleveland, and 45/4½ for Hematite.

Pittsburgh.

(By Telegraph.)

It is stated that the Edgar Thomson Steel Works, at Bessemer, Pa., will be closed down about September 1 in all departments, unless orders for Rails are received in the meantime. Should it become necessary to close the plant down, extensive repairs will be made while it is idle. The Carnegie Steel Company, Limited, have made a general reduction in wages of officials and clerks, to go into effect at once, as follows: Clerks under \$60 P month are reduced 10%; from \$60 to \$150, 15%, and all above \$150, 20%.

Philadelphia.

(By Telegraph.)

We note sales to-day of several thousand tons of Billets, in lots, at about \$22.75, delivered.

PERSONAL.

A. Sherwood, who has been associated with Edwin S. Jackman for a number of years in the Chicago steel trade, has been appointed manager of Park, Bro. & Co.'s London branch house. Mr. Sherwood is of English birth, but has resided in this country long enough to thoroughly grasp the special points of American steel, so as to be able to present them effectively to foreign buyers and consumers. His advancement has been won by pure merit and assiduous application to business.

Joseph A. Jackson, for a number of years superintendent of the National Rolling Mills of the National Tube Works Company, at McKeesport, Pa., has resigned his position and has been succeeded by Chas. I. O'Connor, for some years general purchasing agent.

Washington News.

(From our Special Correspondent.)

WASHINGTON, D. C., August 15, 1893.

An irrepressible war for position is waging between the ultra and conservative wings of the majority in the House on the character and extent of tariff revision to be undertaken as soon as the silver question shall have been disposed of.

The ultras are making a desperate set against the chairman of the Committee on Ways and Means. These parties represent the unplacated adherents of Mr. Mills, who failed of the Speakership and everything else he undertook.

Speaker Crisp said to the correspondent of *The Iron Age* to-day: "The extra session was called for the specific purpose of repealing the silver-purchasing clause of the act of 1890. It is also the decision of the House that this shall be voted upon as a finality after certain stated amendments are disposed of. Therefore nothing else is in order. For this reason I shall not appoint the list of standing committees until the silver question is disposed of in the House, a week from next Saturday."

Mr. Springer repeated to-day that no intimation has been given to him that he would be relieved from the chairmanship of his old committee.

It can be stated authoritatively that the bill which has been prepared for submission to the House and reference to the Committee on Ways and Means when appointed will be the most radical cut below the line of protective rates which has been attempted for many years.

The principle upon which the bill has been constructed is free raw material and a revenue rate upon all articles, starting at a minimum on articles as they are removed from the raw material line and increasing as they ascend on the scale of manufactured and finished products. Under this plan the rates on pig iron, rolled iron, cast iron, blooms, &c., have been rated at the lowest figure.

It was at first proposed to put some of these articles like pig iron, &c., on the free list, but they have been retained on the dutiable list at the very lowest rate.

The resolution of Senator Hill of New York in the Senate that there shall be no other legislation during the extra session except on the specific subject for which called, caused quite a stir.

His object was to head off certain measures, including the tariff. This subject will not be taken up until silver is out of the way. The President will then issue a special message, giving his views on tariff revision, which will be taken up promptly.

In the compilation of data for ultimate use in the bureau annual reports a computation has been made of premiums for speed above the requirements of contracts attained by the new vessels of the navy. It presents some interesting and suggestive figures, as an evidence of the advance made on the machinery and vessels which have been completed during the present year. The "Bancroft" began the race for speed and secured for her constructors at Elizabethport, N. J., \$45,000 for exceeding the speed demanded by the contract. The "Detroit," turned out at the Columbian Iron Works, Baltimore, won \$150,000. The "New York" made 21 knots and realized a premium of

\$200,000. The Bath Iron Works showed their skill as builders of naval vessels by winning \$45,000 on the "Machias" for excess of speed. The "Columbia" or "Pirate," and doubtless the "Minneapolis," will have an opportunity to make a speed record and a bonus before the year is over. The "Columbia" is contracted for as a 21-knot ship. To exceed that will beat all records on speed. The Cramps earned \$100,000 in speed premiums, respectively on the "Philadelphia" and "Baltimore." Scott of the Union Iron Works of San Francisco reaped the same bonus on the performances of the cruiser of that name. By the time all the present vessels under way are completed the United States will have the fleetest and finest, if not at present numerically the largest, navy in the world.

The Queen & Crescent Route has issued a new tariff on pig iron, effective August 16, covering rates from Southern furnaces to points North. Changes have been made in the rates to the following more important points, the figures being for carload lots of 17½ tons of 2268 pounds:

| To— | From— | Dayton and Rockwood, Tenn. | Chattanooga, Tenn. | Birmingham District. | Decatur, Florence and Sheffield, Ala. | Reduction from former tariff. |
|-------------------------|-------|----------------------------|--------------------|----------------------|---------------------------------------|-------------------------------|
| Columbus, Ohio..... | | \$2.70 | \$2.90 | \$3.40 | \$3.15 | \$0.05 |
| Detroit, Mich. | | 3.45 | 3.65 | 3.90 | 3.75 | .05 |
| Minneapolis, Minn. | | 4.90 | 5.10 | 5.35 | 5.10 | .04 |
| Muncie, Ind. | | 2.80 | 3.00 | 3.25 | 3.00 | .15 |
| St. Paul, Minn. | | 4.85 | 5.05 | 5.20 | 5.05 | .09 |
| Zanesville, Ohio..... | | 2.95 | 3.15 | 3.65 | 3.40 | .10 |

The last column gives the reduction below former rates of freight.

We understand that negotiations for an agreement between the Sloss Iron & Steel Company and the Tennessee Coal & Iron Company for the handling of their coal trades have been terminated. The month of August is the contracting period, and the failure to reach an agreement at this time means that all efforts of that nature will be postponed at least for another year. We understand that the Sloss Company are booking contracts for the year on slightly more favorable terms than were received under the expiring contracts.

The Navy Department has issued advertisements for the construction of three gunboats, which are to be of 1200 tons displacement, have triple expansion engines and capable of about 15 knots speed. They will be practically of the same type as the "Bennington" and "Yorktown," although somewhat smaller, and are intended for service in Chinese waters. Under the advertisement the Department reserves the right to award the contract to any bidder, regardless whether or not it is the lowest submitted. This is done in order to make a more equitable distribution of the construction of warships among the ship yards of the country. Heretofore nearly all the ships built for the navy have been constructed by two or three firms, who have been able to outbid the smaller companies by reason of their larger plants.

HARDWARE.

Condition of Trade.

THERE is little in the condition of affairs in the Hardware trade to indicate the approach of the activity which in ordinary times would be expected to begin about this season. Travelers are to a large extent at home, and manufacturers and jobbers are making slight efforts to secure trade. Prices on manufactured goods are generally low and already based on cheap raw materials. Stocks are generally small, or at least moderate, and there is but little inducement to force goods on the market at lower prices, even if this course would result in a large increase of business, while manufacturers are continuing the conservative policy which they have pursued for many months, in reducing production to conform to the conditions of the times.

Chicago.

(By Telegraph.)

Hardware jobbers talk more cheerfully, although they do not claim that business is much better, but there is a slight improvement which makes them feel that the worst is over. Every day also brings the time nearer at hand when preparations must be made for cold weather, and this will certainly add to the volume of business. The news from agricultural districts is encouraging and farmers are expected to be in good condition shortly from the heavy demand for food products. This will at once be reflected from the retail Hardware trade. There is some apprehension that a revival in trade may be so sudden that it will catch dealers generally very short of stock. The Heavy Hardware trade is in better shape than a short time since owing to the improved demand for iron and steel from consumers who usually buy of manufacturers direct. Collections are by no means poor.

St. Louis.

(By Telegraph.)

The same old story of dullness is repeated by jobbers from week to week. Country dealers will not order their usual complement, and jobbers are doing the smallest business they have done for years. Prices are held fairly well, as cutting does not seem to increase business to any appreciable extent. In some lines jobbers have practically no stock whatever, and as manufacturers are closed down wholly or in part, it is impossible to get goods. This applies only to certain lines, par-

ticularly Wire Nails. Jobbers are watching collections, and as a result they show some improvement.

Baltimore.

CARLIN & FULTON.—Since our last letter we can see a decided improvement in trade over July, but possibly not over the corresponding month of last year.

The mail orders have been much more numerous and we have been pleased to see a number of buyers from the South in our market, making their purchases in person, and from what we hear there will be many who will take advantage of stop-over privileges to visit the Eastern cities, either going to or coming from the World's Fair.

While our immediate vicinity is suffering greatly from the lack of rain, we have been informed that the crops of North and South Carolina have lately had most beneficial rains and that they are now in most excellent condition.

This morning's papers furnish us with the gratifying statements from all the large cities to the south of us that they will be able to furnish with ease all the currency necessary to move the growing cotton crop and that the public need have no fears of the stringency affecting its early shipment. This information comes from the cities of New Orleans, Atlanta, Charleston, Augusta, Memphis and Mobile, and will prove of incalculable benefit to business throughout our whole Southern market.

Considering everything, remittances have been remarkably good and while many have asked for accommodation, yet there have been comparatively few failures experienced.

If Congress will but act wisely and promptly trade will soon be all that can be desired.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—We have to report a very quiet time in trade here in the last fortnight. Jobbers are now resting on their oars, having taken in sails, and are awaiting the outcome of the present unsatisfactory financial conditions. Trade is confined mainly to staple goods, and the little additional business that necessarily comes to hand. Traveling salesmen have been mainly withdrawn. It is expected, of course, that this condition of things will not last long; but it will certainly do so till there is a change for the better in the financial world. In the meantime, jobbers are putting their houses into order for whatever is liable to occur; so that, whether times improve or not, they will be in shape to meet the possibilities. There is no buying done except for actual necessities. Stocks are being depleted somewhat, and when things clear up, as it is hoped will be done at an early date, there will be considerable amounts of goods ordered, and probably most of them in a hurry. Still, even with the most favorable outcome, business will be conducted on a more conservative basis than her-

tofore, and trade will be largely restricted this fall.

Collections have been reduced somewhat, but no more than has been anticipated. The fact is, they have been unusually good in the Northwest this season, taking into account all the circumstances, and the jobbers feel well satisfied over this important factor in the situation.

Since our last there was a flurry in some of our banks, which has wholly passed away, except that one bank is still closed, pending the decision as to whether it will resume business or go into the hands of a receiver. The high standing of St. Paul as a financial center is certain to be maintained throughout this season of distrust and liquidation.

Omaha.

LEE-CLARKE-ANDRESEN HARDWARE COMPANY.—So much is being written regarding the financial and business conditions of the country, it is necessary that the situation should shift frequently and rapidly or there is danger of the subject becoming threadbare from constant use.

Trade is in very much the same condition as outlined in our last report, and business men do not appear to have materially changed their views.

The general policy still obtains of keeping close to the shore and waiting for the financial storm to blow over before venturing very far from land. Goods of all kinds are being purchased in very moderate quantities, and the trade partakes largely of the hand-to-mouth character.

Just at present there are symptoms of a better tendency in the financial situation, which, to a limited extent, is reassuring. These indications may not be very distinct, but they are strong enough to give assurance that the general situation is not becoming any worse. The splendid crops of the past and the very favorable outlook for the coming corn crop ought to make business good, and would, without doubt, in ordinary times.

The cutting down of loans by the banks has made it very difficult for some firms that are obliged to borrow to do business, and has compelled some of them to reduce their operations within the bounds of their own capital. Then the uncertainty as to when the money market will return to its normal condition is preventing some few business houses from anticipating the future and making plans for extension of business operations later on.

Although there is every evidence of general prosperity in this State, it is impossible to reduce the credit of business houses without reducing to some extent the volume of business. In spite of all drawbacks, however, the jobbing Hardware trade of Omaha is enjoying a fair share of business for this season of the year.

New Orleans.

A. BALDWIN & Co.—The financial situation is the all-absorbing topic in this section and it has completely demoralized all lines of business. We have not been affected to the extent of our Northern and Western neighbors,

but it has finally reached the Southern section of the country. Business in a general way is fairly active, but all accounts are scrutinized so closely that there are very few goods moving. Most of the jobbers are canceling or holding back shipments of orders placed for early fall delivery, as they do not feel justified in making any heavy additions to their stocks under the present circumstances.

Cleveland.

THE W. BINGHAM COMPANY.—There is little if any change in the condition of trade since our last. Buyers of all classes are still holding off and are ordering from day to day only such goods as they are obliged to. Most of the large jobbing houses are extending their travelers' time of recreation, and but few men are on the road. Prices on the staples of Wire and Nails are somewhat higher and decidedly firmer, owing to a curtailment of supply on account of the mills shutting down, with no indication of their starting up at present. Collections are not encouraging and currency is very scarce. Many of the factories are paying their employees in small checks on local banks, which are taken by dealers on accounts.

Louisville.

W. B. BELKNAP & Co.—It is very difficult to make any interesting reading out of the Trade Report at present. Everything is prosaic, dull, and as inelastic as the price of Finished Iron, for example. There is an unhappy timidity, both on the part of buyer and seller; the first fearing a lower price almost immediately or his own inability to pay at the agreed time; the second apprehends that his customer's pet bank will suspend and he plead as a stay law against all collections.

The sensations of the day are so thoroughly worked by the morning and afternoon papers that the average reader would hardly seek out the Trade Report for anything refreshing; therefore, as little is expected of us we gather courage.

Price on Iron is firm—no bargains are offering yet. Manufactured stock, at least, does not seem to have been hypothecated to any great extent—at any rate there have been no failures worth talking of in the Iron business, so there have been no lots put on the market at assignees' or sacrifice prices. Prices have been so low for several years, and stocks run so close, that there is actually nothing in sight for a squeeze.

The heaviest decline in any commodity is that of New York exchange, which is reported to have sold at anywhere from 2 per cent. to 3 per cent. discount for cash. This beats the terms of the American Axe & Tool Company, for example, all to pieces. They no doubt thought they were doing the liberal thing by offering 8 per cent. per annum for prepayment. It takes a right strong discount nowadays to draw out actual currency, and 1 per cent. a month is of little more effect than a second hand mustard plaster. However, we are getting down on a good cash basis, and those who survive will doubtless be able to look at each other with pride in the satisfaction of having demonstrated their individual and eternal fitness.

The scarcity of money and shrinkage of trade has caused all good business concerns to study economies not previously thought of, and the lesson,

though sharp and severe, is bound to be a good one.

But surely it is a ridiculous situation for this great country to be in, all on account of asinine legislation, which has proven to be ineffective and destructive from the beginning. If we could only have a law requiring all would-be legislators to pass an examination in the rudiments of political economy before being permitted to serve we might have some views better worth the printing than those of Populist Senators from the West, whose principles, boiled down, would seem to be that the cheaper the metal the better it is adapted for the poor man's money. Put us on a footing with the best nations of the earth by giving us the best money, and our cotton and our wheat and our wool, and all of our other products, will bring what they are worth. We would not be subjected to the heavy discount of the exchange broker.

Portland, Ore.

CORBETT, FAILING & ROBERTSON.—Excepting to note events in banking circles there is little material for a letter just now. The suspension of three national banks and two savings banks—the result of "withdrawal of deposits and inability to realize on security"—naturally created a feeling of distrust, and runs on the other banks followed, as a matter of course. The runs lasted but a few hours, and business now goes on as usual. An immense amount of gold has been paid out over the bank counters, and it is now a matter of wonder who has it and where it is kept. With a return of confidence it will some day find its way back to the banks and help to make things easy once more.

Trade continues moderate. The hand-to-mouth policy of country dealers still prevails, and the city trade are careful and discriminating in granting credits.

The prospect of an abundant harvest is being realized, and the hop yield is in excess of any previous year.

San Francisco.

HUNTINGTON HOPKINS COMPANY.—In times like these there is very little occurring from a business point of view that will interest the general reader. There is no denying the fact that business is poor and collections about the same. Business houses, as a rule, are not pushing the sale of goods, and some country merchants are not buying what they actually need, the majority of them carrying about all they can bear on their books. We are, of course, like the rest of the country, looking forward to better times, when confidence will be generally restored.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—During the last two weeks trade has been confined to narrow channels. In locations that are suffering from the effect of factories' reduced working hours, or where factories are entirely closed, trade is naturally restricted in volume.

In other locations, depending upon agricultural or farm products, there is not far from the usual demand for goods, restricted only to a limited extent, owing to the hoarding of money by their customers.

The local crop products are good, and building is only being restricted to the extent of the scarcity of currency. Through the South the outlook, under any other circumstances

than those which now confront us, would be more than hopeful. Mail orders are numerous, but for smaller quantities than usual.

The most unfortunate feature of the situation is collections. It is quite evident that many customers have fallen into the mistaken idea of holding their reserve either in bank or in their safe.

We beg to differ from the advice given by the Controller of Currency, Mr. Eccles, who advises persons to keep their money in bank. Our advice is that persons had better keep the money in circulation. One would scarcely realize how many times a \$100 bill (or any other given amount) can be turned in the liquidation of debts. It passes from hand to hand and from bank to bank in liquidation of accounts.

Keep it in circulation is the proper plan: besides, but little harm can come to the merchant if he owes nothing. No matter how badly your bank may desire funds, self-preservation demands liquidating one's debts.

Neither can one sit idly looking on, waiting for something better to turn up. Keep active; be prepared for all the opportunities of trade that present themselves; pay your bills and buy again; but above all, keep your credit good. Not only let there be no uneasiness on the part of your creditors, but remember the fact that they have bills to pay, and their ability to pay them depends upon their customers.

Interior customers should realize that prices of product are low, fearfully low; but the prices they pay for their goods are almost correspondingly low, and in this they have had advantage prior to the reduction in price of agricultural products. There is an abundance of everything that brings in money.

Discredit the pessimist who is happy when predicting ruin, and let each one put his shoulder to the wheel. Whilst cautious, be just unto others as well as yourself. The night may be temporarily dark, but daylight is likely to soon appear. The lack of confidence resulted in the hoarding of money.

There is, however, a vigorous increase of the currency being prepared for circulation, and \$15,000,000 is already in active preparation by the national banks, who have deposited their bonds, and not less than \$40,000 output is likely to enter into circulation in the near future.

This increase will not be profitable to the national banks, owing to the fact of their not being able to issue an equal amount of currency to the bonds deposited; nevertheless, at this disadvantage they are willing to do it to relieve themselves as well as the money stringency.

Since our last favor rays of hope and encouragement have been seen in the distance, owing to the process of the transfer of a large amount of gold from London to this country—some \$13,000,000—to be followed with another shipment of \$5,000,000 to \$10,000,000.

The enthusiastic partisan, who saw no danger when, in one week, from \$5,000,000 to \$6,000,000 were leaving our shores for excessive importations during the spring (never to be returned for the same purpose), refers to this gold importation more enthusiastically than is necessary.

What do we sacrifice to get this return of gold which will enter our ports at an early date? It is partly borrowed on hypothecated securities sent out by brokers to realize on temporarily; partly upon stocks recently sold to London at the present unprecedentedly low rates, which will doubtless be returned upon us again for gold as soon as sufficient profit is shown to satisfy the purchaser to make the sale; but lastly, though not least, wheat,

largely held by the Western capitalists as security, who determined to realize on the same at any price that England could be induced to buy at, was unloaded in that market at a figure scarcely ever before known, and thus the price of wheat has been established for our whole country; and the farmer, instead of the anticipated rosy outlook for the year, especially in the interior and remote regions, must be satisfied to receive from 45 to 50 cents per bushel.

Simultaneously with the head lines seen in our daily papers of the amount of gold coming to this country, were published reports in foreign papers, and a leading London paper, under date of July 31, stated that the Bank of England must resist the further shipment of gold in the usual manner, by raising the rate of discount to whatever point would stop it. The consequence is the rate of discount in the Bank of England was advanced immediately $\frac{1}{2}$ per cent., followed a few days later by a further advance of 1 per cent., and, if necessary to prevent a large outflow, an additional 1 per cent. will no doubt be demanded.

They propose to work on the principle that "a bird in the hand is worth two in the bush." They have secured the money from us, and to let it slip through their hands again, it will only be done at a greater sacrifice of wheat and breadstuff, or a further sacrifice in the price of our stocks.

Therefore, if any further reasons are required to show the great and serious blunder made in our original reduction of our gold surplus than given in the article in *The Iron Age*, under date of August 3, you have it above.

We are, by the theoretical reduction of our surplus, financially at the mercy of our foreign neighbors, as far as gold is concerned.

Our experimental financial policy has had a far greater depressing effect on our monetary troubles than is generally realized. Unquestionably the Secretary of the Treasury had authority, under the act of July, 1890, to redeem the silver notes (or certificates) issued as legal tender for bullion, purchased in either gold or silver. These notes are legal tender at the face value in payment of all debts, public or private, and are redeemable either in gold or silver coin, at the option of the Secretary of the Treasury.

When this law went into effect, however, silver was quoted at \$1.25 per ounce. Therefore it was not wise to suggest the possible expediency of paying these, contrary to all precedent, in silver, especially at the present time, when silver is worth 70 cents per ounce, making the silver dollar worth only about 52 cents.

When our Government entered into the silver trade they naturally took the risk of all traders, and, as results have shown, they have sustained losses that all traders are liable to. They possibly would have sustained less losses had they entered into the Pig Iron trade; but they have sustained no greater losses during the last three years than the wholesale Hardware trade, as well as manufacturers, have sustained during the last few years of liquidation.

Further, when our Government entered into the market as a broker, it naturally took a broker's risk. The Secretary of the Treasury recently entered into the market as a silver broker, and did not buy the required amount of 4,500,000 ounces of silver per month, as prescribed by law, but only such a quantity as, in his opinion, was the present value, and only such amount as was offered below 70 cents, the price based upon a sale made in England, refusing what was offered at 70 cents, but later paid 72 cents, and a recent price paid was 75 cents per ounce.

Our present troubles may therefore be classified under the following heads:

First and greatest, the mistaken theory of gold surplus reduction.

Second, partisan insincerity.

Third, Government's experimental financial policy.

Fourth, the silver law, existing prior to July, 1890, supplemented by the Sherman silver purchasing clause, July 14, 1890.

President Cleveland, in his message sent to Congress, surpassed the anticipation of his most sanguine friends, and those who had prepared themselves with dictionary conveniently located, expecting his customary use of coined or unused words, found instead, in plain and unadulterated language, the best written document that ever came from his pen. It is wise, plain, forcible and patriotic, and in it he did himself great justice.

He presents the situation in a manner that cannot be misunderstood, and plainly refers to the present perilous situation and strongly urges that all political and party prejudices be set aside, in order to speedily accomplish what is essential, in order that the country may be again restored to a prosperous condition.

It now remains with the Congress to act upon his suggestions without delay. The country is in no condition to be made to suffer still further from unnecessary delay.

President Cleveland states plainly: "The matter arises above the plane of party politics. It virtually concerns every business and calling and interests every household in the land." He gives twice who gives quickly."

Now, will Congress do it? As before stated, President Cleveland has enemies (in assumed friends in the fold), which are greatly to be feared.

Referring to the situation, a leading administration paper in New York summarizes the situation thus: "In the Senate we can depend upon one-half of the Democrats and two-thirds of the Republicans;" all of which goes to prove the financial problem should be eliminated from party politics.

Notes on Prices.

Cut Nails.—The demand continues small, transactions are few and the quotation of \$1.05 for carload lots at mill remains unchanged, but this figure is more firmly maintained than it has been, this market feeling the influence of the improvement in Wire Nails. Small lots from store in New York are held at \$1.30.

Chicago, by Telegraph.—An improvement is noted in the demand for Cut Steel Nails. Good specifications have been received by manufacturers within the past week. It is too early yet to find much hope on the movement, which may or may not be the forerunner of a better condition of things. Prices are unchanged at \$1.20 to \$1.25, Chicago, for factory lots, and \$1.25 to \$1.30 for small lots from stock.

Wire Nails.—The makers of Wire Nails appear to have succeeded in establishing an understanding among themselves, and the quotation has been advanced to \$1.50 for carload lots at mill by all the makers. The mills remain generally closed and stocks there are very much reduced and assortments broken.

Chicago, by Telegraph.—Buyers seem to have suddenly found that they need Wire Nails; even those who did not expect to be in the market for several weeks. Inquiries are numerous and sales have been made at advanced figures. The price for factory lots is now \$1.50, Chicago, and makers say that there will soon be another rise. Factories are still shut down and stocks are badly broken. Some manufacturers have not made deliveries for two weeks on old contracts, although importuned by their customers, alleging that they have no stock to ship from. Jobbers' prices are maintained at \$1.55 to \$1.60, according to quantity.

Barb Wire.—Business in this line continues confined to small lots, and we continue \$2.45 to \$2.50 as the nominal quotation for carload lots of Four-Point Galvanized at mill, small lots from store being held at the usual advance.

Chicago, by Telegraph.—The Ellwood Mfg. Company have issued a circular quoting Glidden Wire at \$2.10, Junior Wire \$2.05, Ellwood Four-Point \$2.05, for carload lots of Painted, with 5 cents advance for less than carloads, and 40 cents advance for Galvanized, at their factory at DeKalb. Terms are 60 days, or 2 per cent. off for cash in ten days. These prices only hold good for stock on hand. The company further state that they will hereafter refuse to give long credits, usually known as spring terms. This is an important announcement, and introduces a reform in the Barb-Wire trade which will be appreciated by other manufacturers. The practice is to be stopped of dating bills ahead and carrying accounts for an indefinite time on the payment of interest. Manufacturers report a decided quickening in the demand, although sales thus far have been mainly in small quantities. Transactions are exclusively for cash. Carload lots of Standard Barb Wire are quoted \$2.10 and \$2.50 respectively for Painted and Galvanized. Small lots from stock are held at \$2.20 and \$2.60.

Meat Tenderer.—The Frasse Company, 19 Warren street, New York, as agents for the Lavigne & Scott Mfg. Company, New Haven, Conn., are offering the Lavigne Peerless Meat Tenderer, as illustrated in this issue. This article is sold to the trade at a discount of 20 per cent. from the following list :

| |
|--------------------------------|
| Each. |
| Japanned and bright.....\$1.00 |
| Full nickelized.....1.25 |

Detachable Blade Razor.—The Evertz Detachable-Blade Razor, illustrated in this issue, is offered by Broch & Co., 47 Warren street, New York, as sole agent for the United States. The Razors, with three blades each, are sold to the trade at \$15 per dozen, net.

Corn Razor.—This article, which is offered by Alexis Witte, 47 Warren

street, New York, and illustrated in this issue, is sold to the trade at \$6 per dozen, net.

Sperry Combination Grater and Slicer.—This article was recently described in our columns. It is put on the market by the Chicago Hardware Specialty Company, 147 and 149 Lake street, Chicago, and is sold to the trade at \$2.50 per dozen and \$22.50 per gross.

Preserve-Jar Holder.—This article, which is illustrated in this issue and is being introduced by Francis H. Loss, Jr., 33 Murray street, New York, is sold to the trade at \$3 per dozen list, subject to a discount of 10 per cent.

Smith's Brace.—A description of this Brace appeared in our columns a few weeks since. The Brace is put on the market by the Holt Mfg. Company, Hartford, Conn., who are selling it to the trade from the following list, which is subject to a discount of 50 and 10 per cent.:

Smith's Brace.

| | Per dozen. |
|--------------------------|------------|
| No. 6, 6-inch sweep..... | \$21.00 |
| No. 8, 8 " | 24.00 |
| No. 10, 10 " | 27.00 |
| No. 12, 12 " | 30.00 |
| No. 14, 14 " | 33.00 |

Smith's Brace, with Ratchet.

| | Per dozen. |
|--------------------------|------------|
| No. 6, 6-inch sweep..... | \$30.00 |
| No. 8, 8 " | 33.00 |
| No. 10, 10 " | 36.00 |
| No. 12, 12 " | 39.00 |
| No. 14, 14 " | 42.00 |

Cordage.—Affairs in the Cordage world, which were very mixed up to last week, are now assuming a more tangible form. The National Cordage Company have a manufacturing capacity equal to about 60 per cent. of the entire output. The balance is controlled by independent operators. The receivers of the National Company recently made an agreement with John Good to restore prices to a basis that would give a difference of 4 cents per pound between the finished product and the raw material. At the time it was suggested that a meeting of the independent manufacturers be called for the purpose of ratifying this price. The meeting was held on Wednesday and Thursday of last week, but the National Cordage Company were not represented.

It was decided to form a Protective Association for the purpose of deriving a greater net revenue from the business. In the absence of a representative from the National Cordage Company, it was considered a little premature to take any action on prices. The lines were laid for a working agreement which will maintain prices and facilitate the purchase of raw material.

A decision reached at the meeting—namely, to replace machinery now in use by that manufactured by John Good—was a most important step in its bearings on the future of the industry. It was demonstrated that the new spindles will manufacture Cordage 1

cent per pound cheaper than the old. This is partially due to the fact that one new spindle will do the work of two old ones. The number of spindles to be replaced under the agreement is 2000.

The National Cordage Company have in use spindles similar to those which are to be replaced by the independent mills.

From this it will be seen that the minority interest, which is perfectly solvent, has taken steps which will give it 1 cent per pound advantage over the majority interest, which is as yet insolvent. It is current opinion that the leverage which is thus secured by independent manufacturers will be used to force the National Cordage Company into some sort of a relation which will be beneficial to all makers.

Heretofore the two factions have not been in a position to negotiate. The independents, headed by Mr. Good, lacked organization, while the National Company, now in the control of bankers, was not in condition financially to talk business. One of the objections has been overcome, and it is believed that the National Company will work their affairs into shape under the reorganization plan during the fall. They must recognize a formidable competitor in the Protective Association, and being possessed of intelligent management, the supposition is that it will readily agree upon an equitable basis of prices.

Glass.—The situation of the Window-Glass market is about the same as reported last week. Eastern prices of domestic and imported Glass conflict in some cases, resulting in lower figures being named than the National official prices. Glass for immediate consumption is selling in small quantities, and it is understood that stocks in dealers' hands are generally low. Nothing definite was done regarding wages at the meeting of the National Window Glass Company, held at Chicago last week, further than to instruct the Wage Committee to arrange for a lower scale than that of the last fire. Various manufacturers and jobbers name October 1 to December 1st as the probable dates between which factories will start up. There is nothing new in the Plate-Glass market, and quotations on all kinds of Glass remain unchanged.

Clinton Wire Cloth Company., Clinton, Mass., announce that William H. Howard has assumed charge of their New York store, having been succeeded in Chicago by Edwin F. Schmidt, for many years in the company's employ at factory and Chicago. The company also take occasion to thank their customers for their kind consideration since the destructive fire at their factory April 19 last, and state that in rebuilding they have largely increased the capacity of their plant and fitted it with the latest and most approved machinery, which will enable them to meet all demands and maintain the high quality of their goods.

Meetings of the Rope Manufacturers.

THE MEETINGS of the Rope manufacturers held August 9 and 10 at the offices of the John Good Cordage & Machine Company, New York, resulted in perfecting a temporary organization of the Cordage interests represented, of which John Good was elected president. A committee of five was appointed to formulate plans for forming a permanent association, preparing articles of incorporation, by-laws, &c. The stated object of the organization when perfected will be a more harmonious action both in the purchase of the raw material and in obtaining fairly remunerative prices for the manufactured product. The proposed plans include the depositing of a forfeiture by each member of the association, and the general supervision of the workings of the association by a committee. The following were represented at the meeting:

PENN CORDAGE COMPANY.

BRIDGEWATER CORDAGE COMPANY.

JOHN GOOD CORDAGE & MACHINE COMPANY.

TRAVERS BROS. & CO.

HOoven, ALLISON & CO.

BAY STATE CORDAGE COMPANY.

PEORIA CORDAGE COMPANY.

COLUMBIAN CORDAGE COMPANY.

MIAMISBURG BINDING TWINE & CORDAGE COMPANY.

NORTHWESTERN CORDAGE COMPANY.

JAMES CATING.

LEWIS A. MILLER.

A cordial invitation to attend the next meeting will be extended to those interests which were not represented at the meetings of August 9 and 10. The progress made at these meetings looking to the formation of a permanent organization, and the harmony of sentiment and unity of action exhibited by all present, were subjects of resolutions passed by the meeting. The meeting adjourned subject to the call of the president. Among the prominent Cordage interests not represented at the meetings were the National Cordage Company, Plymouth Cordage Company, Pearson Cordage Company, and Edward H. Fitler & Co.

Hardware Organizations and the Sherman Bill.

AT A REGULAR MEETING of the Boston Iron and Hardware Club, held on August 8, the following resolutions were unanimously adopted:

Whereas, The remedy for the present depression in business and finance rests wholly with Congress, now in session, and believing that repealing the purchasing clause in the Sherman Silver bill will tend to establish confidence—

Resolved, That the purchasing clause of the Sherman Silver bill should be repealed, and that no legislation should be enacted as a substitute at the present session of Congress.

Resolved, That an expert commission should be appointed to submit to Congress, at its regular session in December, a comprehensive plan for the readjustment of our currency, based on a gold standard.

Resolved, That the special session of Congress should adjourn after repealing the purchasing clause and appointing a commission for the readjustment of the currency.

American Machinery in Great Britain.

CHARLES CHURCHILL of Charles Churchill & Co., Limited, 21 Cross street, Finsbury, E. C., London, is now in New York. Mr. Churchill is a native of this country who went to London 30 years ago, and three years later established the business of introducing American Machinery and Tools for working metals and wood. The company now have showrooms and warehouses in both London and Birmingham, and carry a stock of leading goods at the latter place of about \$60,000, which enables them to quickly supply many of the factory towns around Birmingham, among which are Coventry, Wolverhampton, Walsall, West Bromwich, &c., many of them being in close telephonic communication. Of course the more important articles are brought over on importation orders. A feature which brings the concern much trade is the rapidity with which rush orders are handled, illustrated by the following incident: A customer having need of two screw machines and not willing to wait two months for them to be made at home, gave an order to this house on a Friday morning.

The indent was at once cabled to the Garvin Machine Company in New York, with these results: The goods were packed and put aboard the Liverpool steamer sailing the next day, and so cabled, and delivery was accomplished inside of 13 days from placing of order, at Wellingborough, Northamptonshire. The principal goods dealt in are illustrated and described in a catalogue which now numbers 318 pages, 11 x 8½ inches, which includes the productions of many of our best makers, whose names are plainly given with the different articles. This enterprise has always been confined to marketing American goods of this character, largely for English and Scotch consumption, but considerable trade is also done with Continental countries through agents in the leading centers. There is no attempt at competition with low-grade English tools. Asked about the present condition of things there, Mr. Churchill said, while engineers and others were complaining of dullness, their business had been but little affected yet, and attributed it to the fact that where new machinery was being put in it was of the latest and best, and much of American production was sought, as better goods for the money were secured than were obtainable at home. He believes there is going to be a steady and increasing demand in Great Britain for high-grade machinery and tools made here, and gives as a reason that those introduced in years past have made a good impression. Mr. Churchill will go to Chicago about August 20, and later to St. Louis, Cincinnati, Philadelphia, and back to New York. After that he will visit Hartford, Providence, New Bedford, Boston, Worcester, &c., and return to England about October 4. His address in New York is at 90 Maiden Lane.

THE GOODELL COMPANY of Antrim, N. H., manufacturers of Cutlery, have notified their employees that, owing to the scarcity of orders, the works will be run but three days a week until further notice.

Trade Items.

IT IS REPORTED that the directors of the United States Whip Company voted, on August 10, to shut down all the factories in the Whip Syndicate until August 28. The shut down is occasioned by the inability of the companies to dispose of their goods.

ALBRECHT GRAEF of the Graef Cutlery Company, 98 Duane street, New York, who went to Europe in June last on business connected with his house, is expected back in September.

THE KILMER MFG. COMPANY, Newburg, N. Y., report an unusual demand for Bale Ties, which is due in a large measure to the heavy exportation of hay just at this season. The company make an extra heavy Tie for export use, and their extensive works are running full time in order to keep up with orders for these goods as well as for Barb Wire, Stel Wire Rods, and other lines.

THE TRADE will observe the advertisement of Atlas Mfg. Company, New Haven, Conn., on another page, in which they illustrate their improved Bradley Steel Shelf Bracket. The improvement in this Bracket was introduced in February last and pertains to the screw holes in the upright arm. This construction, the company claim, adds to the side bearing, looks better than the former pattern, while it also admits of driving the screws more readily. As an illustration of the sustaining power of this Bracket the company advise us that in a recent test they suspended 925 pounds from a pair of 5 x 7 Brackets before they broke down.

E. BISSELL, SON & CO., 12 Murray street and 15 Park Place, New York, among the Special Notices in this issue, announce an attractive trade sale of Cutlery to take place on August 23, 24 and 25. A very large and varied line of Table and Pocket Cutlery, Carvers, Butcher Knives, Silver-Plated Ware, Scissors, Shears, &c., will thus be disposed of.

S. A. HAINES of the S. A. Haines Company, Indianapolis, Ind., announces that after September 1 his interest in Bicycles will be entirely with the Eclipse Bicycle Company of that city, with factory at Beaver Falls, Pa. The Eclipse Bicycle Company will not only make Mr. Haines' Wheels but an increased line of their own. Mr. Haines has been made manager of the sales department of the company. Their price-list will be ready by October 1.

KELLY AXE MFG. COMPANY, Louisville, Ky., advise us that after their annual shut down of ten days for repairs and much needed rest, they have started their factory full handed, with a night turn in one department. The company state that they have more orders on their books at the present time than for any corresponding period in the past. The bulk of these orders is referred to as for the best grade of Axes.

CORDLEY & HAYES, 172 Duane street, New York, sole agents for the United Indurated Fiber Company of New Jersey, whose factory at Lockport, N. Y., was destroyed by fire on July 29, desire us to state that while this fire will seriously cripple them in filling orders for Pails, Tubs, Spittoons, Wash Basins, Butter Bowls and Slop Jar Mats, they are still in position to supply all orders for many of their lines, having the product of their other factories to fall back on. They are rebuilding their Lockport factory on a much larger scale than formerly, and are confident that in three months they will be again turning out goods from that point.

THE ELMIRA STAMPING & PAPER MFG. COMPANY, Elmira, N. Y., make a specialty of Jute, Rag, Rope and Manila Papers, which they sell direct to the manufacturers of Tinware, Wire Goods, Hardware, Enamelled Ware, &c. The company refer to the quality of these papers. They are also putting on the market the Ithaca Red Rosin-Sized Sheathing Paper. The company's paper mills are located at Ithaca, N. Y.

THE OHIO LANTERN COMPANY, Tiffin, Ohio, who manufacture the Surprise tubular lanterns, have made W. W. Pryor & Co., 81 Chambers street, New York, general Eastern agents for the territory embraced in the New England States, New York, New Jersey and Pennsylvania. A full line of samples will be carried in New York and the trade will be supplied with goods at factory prices.

CAVANAGH & THOMPSON, jobbers of Wooden Ware, Brushes and House-Furnishing Goods, 130 Reade street and 13 Hudson street, New York, who were burned out recently, have decided to go ahead at the same stand, and hope to be in condition to execute orders by September 1. Their loss on stock amounted to about \$4000, fully insured. They have settled with the underwriters and have about closed out such stock as the fire left. A force of carpenters will be put in as soon as practicable, the interior renewed and a stock of merchandise installed, with which to resume business.

UNDER DATE OF AUGUST 1, Salem Wire Nail Company, Salem, Ohio, announce that they have opened a branch office in the Pickering Building, Cincinnati, with W. H. Foster in charge. Mr. Foster has been with the company at their New York office for several years and is thoroughly posted on Wire Nails. He will visit the trade in the cities and towns along the Ohio River, all parts south of the Ohio River, east of the Mississippi and Louisiana.

Price-Lists, Circulars, &c.

SIMMONS HARDWARE COMPANY, St. Louis, Mo.: Catalogue No. 221, Lamps and Lamp Goods. This catalogue for 1893-94 is the same in form as those previously issued relating to this line of goods. The 200 pages are fully illustrated, showing Lamps in large variety, also Lamp Goods, Lanterns, &c.

FARWELL, OZMUN, KIRK & CO., St. Paul, Minn.: 1893 catalogue of Gun and Sporting Goods. This is a large-sized book, containing 104 pages, with an index of contents on the inside of the front cover. Illustrations, descriptions and prices are given of Guns and Sporting Goods in a large variety of styles. On the inside of the back cover attention is called to the company's plan of making the selling of Locks and fine Builders' Hardware easy for retailers. Sample boards of light antique oak, mounted with these goods, are provided by the company, they charging for the samples only, but nothing for the board or for mounting. This enables a dealer to show a large and complete line at a very small expense. An illustration of a board is given, showing mounted samples of one of the four lines of these goods included in their stock.

HOLROYD & CO., Waterford, N. Y.: Stocks and Dies and Threading Tools. Attention is directed to these goods on one side of a very neat and tasteful little pocket barometer, which is 1½ inches in diameter. In the center of the reverse side are five small colored

disks, which are designed, by changes in color, to indicate the approach of clear, changeable and stormy weather. The points of the compass are marked on this side; also statements regarding the kind of weather following easterly and westerly winds, and that resulting from a red sky at sunset. The company advise us that they will be pleased to send one of these weather indicators to every reader of *The Iron Age*, upon the receipt of name.

World's Fair Exhibits.

THE AMERICAN SCREW COMPANY of Providence, R. I., have three exhibits—one in Machinery Hall annex, section 29, K-50; the second in Manufacturing Building, section 3, block P, No. 2; and the third in the Government Building. The exhibit in Machinery Hall illustrates the new cold-forging process employed in the manufacture of Wood Screws, Drive Screws, Tire Bolts, Stove Bolts, and any other kind of circular Screw. Two machines are shown in operation—the three-blow header and the threader, these being the only machines needed in this process. The wire used by the company is drawn with unusual accuracy, to the thousandth of an inch even for large-sized Screws. The cold-forged Screw wastes no metal except a very small quantity which is cut off the point of the Screw blank. Wire is used three sizes smaller than the gauge of the finished Screw. The three-blow header tapers the shanks, forms the head, forges the slot in the head, points the blank and cuts it off. The blanks are then taken to the threader. Here they are poured in a hopper, in which an ingenious arrangement gradually places them in a row, heads up, in an inclined runway leading between two dies which shape the threads. These dies move horizontally, in reverse action to each other, and form the Screw, pushing the metal together and thus raising the thread higher than the shank. One forward motion of the head completes the Screw and it returns idle. The Screw is not cut at any stage, and is much stronger than the ordinary cut Screw, while by this process many more of them are turned out per minute than by the old machines. In a Showcase are exhibited four large Screws, showing the form of the product at different stages of the development of the Screw industry during the last 50 years, the cold-forged Screw easily carrying off the honors in the comparison by reason of its fine and very symmetrical appearance.

The exhibit in the Government Building is shown in cases in the north-western corner of the building, Department of the Interior, Patent Office Section. It consists of 19 models of Screw machinery, from the oldest to the newest designs, covering cutting, heading, slotting, threading and cold forging. These models were loaned to the Government by the American Screw Company. They constitute a very striking demonstration of the evolution of the modern process of manufacturing wood and other circular Screws. The history of the machines of which these models are shown is very interesting. The first inventor of prominence in the production of automatic Screw machinery was Gen. Thomas W. Harvey, who devised a machine for shaving the heads of Screw blanks. General Harvey was followed by Cullen Whipple, Thomas J. Sloan, Charles D. Rogers and others, and examples of their inventions may be found in the exhibit referred to, also the machinery invented by the last-named for cold forging. The Screw machinery used in Europe has been mainly of the Harvey and Sloan cutting type, cold-forging machinery not being extensively employed there. The

American Screw Company were formed by the union of the Eagle Screw Company and the New England Screw Company, both of Providence, R. I., in 1860, the Eagle Company having commenced operations in 1838, under the management of the late William G. Angell. At the present time in the United States there are 15 concerns manufacturing Wood Screws, and since the year 1810 nearly 100 different firms have undertaken the business.

The exhibit in the Manufactures Building consists of two large upright cases, magnificent specimens of fine cabinet work, one of which contains a specimen of every kind of Screw made by the company's cutting process, and the other contains specimens of the cold-forged product. The first case was used at the Centennial Exposition, while the second was built specially for the Chicago Exposition. The Screws are fastened on a background of black velvet, in pleasing designs. These are very artistic, showing exquisite taste and remarkable ingenuity by those who had this part of the work in charge. Among the cold-forged Screws specially worthy of mention are the company's new Fluted Tire Bolt and their Drive Screws. This Tire Bolt has flutings on the shank which hold it in place in the wood, and thus prevent it from slipping or working round, and thus gradually becoming loose. The flutings being straight, the Bolt is easily driven out. The head of the Bolt is materially strengthened by having the fluting terminate some distance from the head, leaving a plain shank directly under it. The Drive Screw has a thread with wide spirals, so that it can be easily driven all the way. The slot in the head does not extend entirely across, but has a shoulder on each side, so that it is not weakened by the hammer, while the slot is left perfect for the use of a Screw driver in withdrawing the Screw. Samples of these are distributed by the company, including cold-forged Screws distorted to show the quality of the metal. Facilities are further provided to show by practical demonstration how the Drive Screws and Fluted Tire Bolts operate in wood.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Apart from a sharp reduction in the price of Linseed Oil, which materially reduces the cost of various lines of Paints in Oil, there is no new feature. This reduction, however, in connection with the low rates ruling for Pig Lead and several minor lines of base material, to say nothing of the stringency in the money market, is not without effect upon buyers, who keep a watchful eye upon passing events. For that matter, the conditions specified, along with minor ones of adverse character, give the market anything but a bright appearance. Few changes in prices have occurred, but it would be a very difficult matter to point out where undercurrent of weakness does not exist.

White Lead.—Business has been almost wholly of a retail character. Jobbers are not ordering supplies for future delivery, and smaller buyers have taken less stock than usual at this season of the year. Corroders have reduced their output, owing to the unfavorable aspect of affairs, and manufacturers of the cheaper class of Leads, according to all accounts, have found it convenient to do something of the same sort. Hence, while general

quotations remain about the same as they have been for some time past, special rates, allowances, rebates, &c., are the rule rather than the exception, showing a weak market.

Red Lead and Litharge.—From large consumers very few orders have been received and the jobbing movement, to all account, was hardly up to the average for the season. Importers are still pushing foreign Lead in a somewhat aggressive manner at prices about $\frac{1}{4}\%$ @ $\frac{1}{2}\%$ under the list rates of the leading producers. It is intimated that this competition is being met sub rosa and that the official list on Litharge is also purely nominal. In any event the market has a soft as well as dull appearance.

Litharge.—There is quite sharp competition between importers of German and French brands, and the German product, being the cheaper by $2\frac{1}{2}\%$ @ $3\frac{1}{2}\%$ lb., is most freely purchased. While this competition goes on the domestic product is virtually neglected. Prices cannot be quoted with any accuracy at the moment.

Zincs.—There seems to be a little friction between manufacturers of American Oxide, the result of accumulation of stock and light run of orders. Certain it is that orders have been coming in slowly at the lower prices noted last week, and that bids have been solicited of still lower figures. On common quality 4¢ has been shaded for lots of 100 barrels or over. Foreign brands have been dull and prices are weak, although the old list is still quoted.

Colors, &c.—Dry Colors have had very slow sale. Grinders are placing less than their customary orders and from other sources the demand is very slow. Oil Colors and Mixed Paints are offered at irregular prices, owing to the break in Oil, and the market at present is unsettled.

Oils and Turpentine.

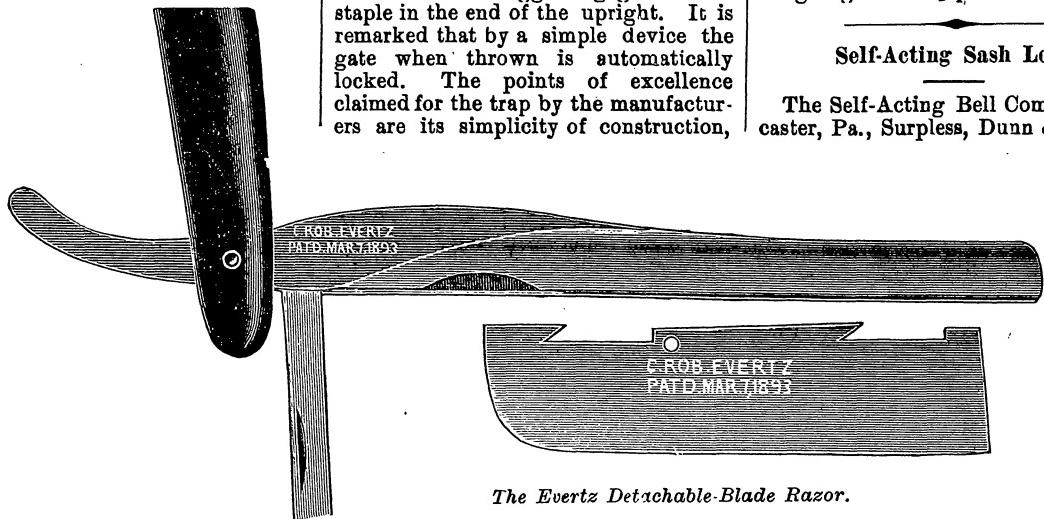
In the market for Oils the leading features have been a sharp decline in Linseed and a turn for the better in prices of Lard product. Neither change was, however, brought about by relation of supply and demand. The Linseed Oil break was due chiefly to aggressiveness between conflicting interests. The improvement in Lard Oil was merely sympathetic with the market for raw material. Other Oils were not affected in the slightest degree, the demand generally having been very tame, while purchases where extremely conservative in the absence of incentive to broad line of action on the part of buyers.

Linseed Oil.—Prices have been dropped to 48¢ for raw Oil made from domestic seed and 48¢ for boiled Oil, ditto, but the list price for raw Oil made from Calcutta seed remains at 62¢. The break has stimulated purchases on the part of large jobbers and consumers, who have been holding off since the downward movement in prices of raw material began, but otherwise has continued on strictly conservative lines. The market at present is in uncertain shape and laboring under the weight of antagonism that is characteristic of failure to carry out "combine" or "trust" intentions.

Cotton Seed Oils.—Dealing have been on a very moderate scale. The demand continues sluggish in all that the term implies. The offering is somewhat reserved, yet broad enough to afford evidence that the amount of Oil remaining back is not small, and that nicely timed manipulation alone has prevented a sharp decline; not only that, but forced quotations a little higher, say to the basis of 42¢ for prime Summer Yellow.

The Evertz Detachable-Blade Razor.

The accompanying illustration is of a razor with detachable blades, offered by



The Evertz Detachable-Blade Razor.

Broch & Co., 47 Warren street, New York, as sole agents for the United States. The blade is provided with notches which engage with rivets in the malleable iron frame, and is held in place by a blade-like piece actuated by a spring back, which, when closed, holds the blade firmly in the frame. Three blades are provided with each handle, packed in one case, and are honed sharp and set ready for use. The blades, it is stated, are made of Ward low's razor steel, carefully and evenly tempered. The razor frame is nickelated to prevent rusting, and the handle is of hard rubber. Having three blades to each handle makes it a triple razor, as the blades can be honed and stropped like any razor, and when one blade is worn out it can be replaced by another one. Extra blades with either square or round points can be obtained at any time.

The Kodak Rat Trap.

The accompanying cut illustrates a rat trap put on the market by Waddel Wooden Ware Works, Greenfield, Ohio.

ease in setting, lightness on the trigger, light weight and compact size.

Hammerless Single Gun.

The H. & D. Folsom Arms Company, 15 Murray street, New York, are offering

substitute for the hammer on the side of the gun instead of in the line of vision. The guns are made in two gauges—12 gauge, with 30 or 32 inch barrels, weighing about 7 pounds; and 16 gauge, with 28 or 30 inch barrels, weighing about 6½ pounds.

Self-Acting Sash Lock.

The Self-Acting Bell Company, Lancaster, Pa., Surpless, Dunn & Alder, 97

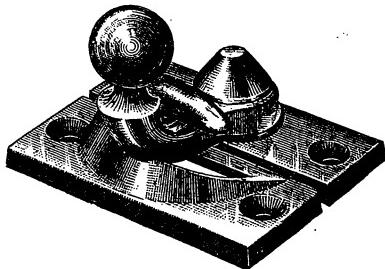


Hammerless Single Gun.

hammerless single guns, manufactured by the Crescent Fire Arms Company, as herewith shown. The gun is provided with the Scott top lever, checkered pistol grip, checkered fore end, fancy butt plate, and is choke bored. The gun is made in two styles, known as the Club and the Trap. The Club

Chambers street, New York, sole agents, are marketing a sash lock, as here illustrated. The lock is constructed with an inclined plane, over which the lever on the upper sash passes in fastening. By pulling on the lever both sashes are drawn closely together at the meeting

rails, thus making the window secure and free from rattling. The company refer to the lock as unpickable, made so by the force with which the lever is brought into the incline. The lock is



Self-Acting Sash Lock.

made in solid bronze, bronze plated, copper plated, oxidized, and Boston bronze.

AT A JOINT MEETING of the stockholders and creditors of the Youngstown Stamping Company, held at Youngstown, Ohio, last week, it was decided not to take any steps looking to the taking of the business of the concern out of the hands of the receiver so long as the general depression in trade continues. For some months past the works of this concern have been operated under the management of W. C. Hine as receiver.



The Kodak Rat Trap.

The trap is described as being made of sugar tree wood, without any springs, about 10 inches long, 5 inches high, weighing 1½ pounds. The perforated screw cap is designed to serve several purposes. It may be removed to bait

has rolled steel barrels, case-hardened frame, rebounding lock and fancy butt plate. The Trap is made with superior twist barrels, nickelated frame, rebounding lock and fancy butt plate. A feature of the guns is the placing of the

Steel Screens.

The Hendrick Mfg. Company, Carbon-dale, Pa., are introducing sand and coal screens, as shown in Figs. 1 and 2. The sand screen, Fig. 1, is made of Siemens-Martin flange steel, with side and ends flanged up out of the solid sheet, and the ends turned over to stiffen the

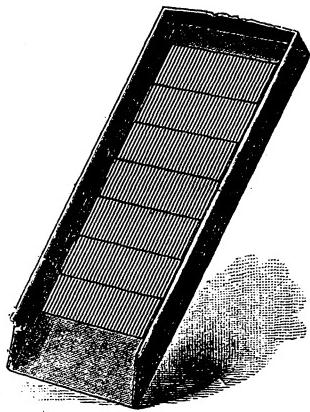


Fig. 1.—Flanged Steel Sand Screen.

screen and enable it to stand blows. The mesh is obtained by perforating a steel plate, which, it is stated, makes a durable screen, and one which sizes perfectly and cannot lose its mesh. This screen is intended for the use of masons, plasterers and foundrymen, and in actual service, it is claimed, has been found to afford the most satisfactory results. The screen, Fig. 2, is especially adapted to such heavy screening as

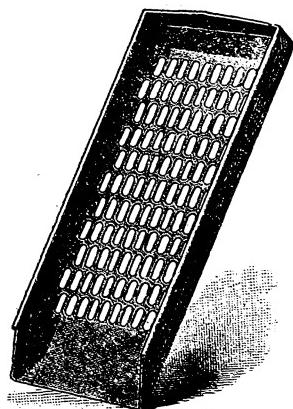


Fig. 2.—Coal and Gravel Screen.

gravel, coal, coke and ore, and is made with such mesh as is best suited for the particular work in hand. The regular sizes of screens, of both forms, are the same, being made in the following sizes: 20 x 61 inches, 22 x 66 inches, and 24 x 71 inches. Special sized screens will be made to order. The manufacturers remark that the screens have been made to fill the demand for something better than the ordinary woven sand, coal and gravel screens, and that by doing away with wood work a screen is produced that is lighter and stronger than wire woven screens with wood frames.

Witte's A1 Corn Razor.

Alexis Witte, 47 Warren street, New York, is offering corn razors, as here-with illustrated. These are made of Wardlow's steel, handsomely finished and finely tempered, with hard rubber

handles. Attention is directed to the form of the cutting edge of the razor, this being considered best adapted to

hand doors and are made in large and small sizes, to be used on refrigerators and house doors. The goods are fin-



Witte's A1 Corn Razor.

the use for which they are intended. The razors measure 3½ inches in length, and are put up in miniature cases.

The Conroy Hinge and Bolt.

P. J. Conroy & Co., Seventy-fifth street and Island avenue, Philadelphia, Pa., are putting the above goods on the market, as shown in the accompanying cuts. The hinge, Fig. 1, is described as being substantially made and well proportioned, having true joints, and

ished in japan, galvanized, brass and nickeled.

The Perfect Scraper or Cleaner.

The accompanying cut represents the above article, put upon the market by Corbin & Co., Owego, N. Y. The scraper or cleaner consists of a piece of sheet steel of different angles and curves, conforming to the shapes of the articles to be scraped or cleaned. This revolves in a metal handle; thus the edge desirable to use can be instantly applied.

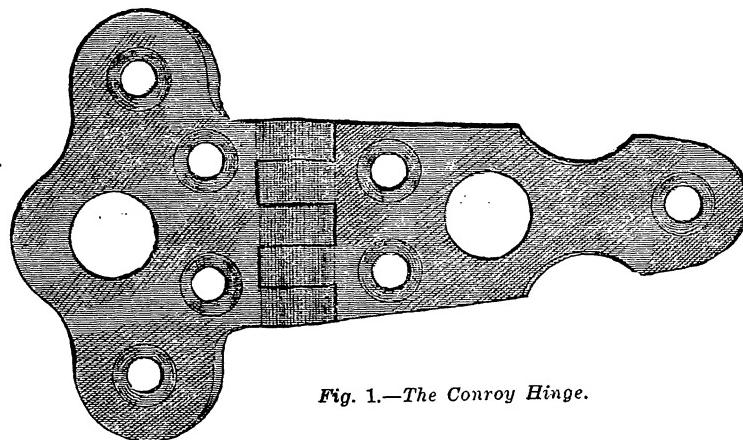


Fig. 1.—The Conroy Hinge.

as being finished all around. It is 5 inches long and is supplied in emery finish, polished and nickeled. The hinge is recommended by the manufacturers as suitable for refrigerators, ship and plumbers' supply dealers. In Fig. 2 a straight round bolt is represented with two eccentricities. When closing the door to fasten it the handle of the bolt is raised and the bolt slid into the keeper, after which the handle is pushed

The scraper is fastened to the handle by an open rivet, by which it can be hung up. The scraper is designed to remove burnt, incrusted food or other substances from cooking utensils of iron, porcelain, earthenware or wood,

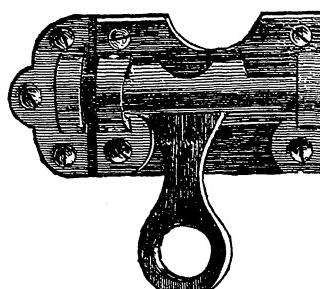
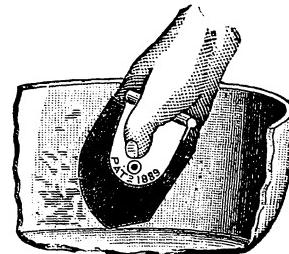


Fig. 2.—Conroy Door Bolt.

down to close the door tightly. The manufacturers claim that the bolt exerts no upward or downward strain upon the door, but a powerful inward pressure with a short leverage; also, that the bolt will force a door into position even if the latter is warped or sprung. The bolts are adapted for use on right or left



The Perfect Scraper or Cleaner.

and is also recommended for removing dough from bread boards, paint from window glass, old varnish from wood, &c. The point is made that its use avoids the danger of cutting arms, hands or wrists, as often occurs when using knives.

JAMES ECKELS has been appointed receiver of the Vienna Stamping & Enameling Company of Chicago, whose works are at Porter, Ind. The failure was precipitated by an attachment filed by the Roessler & Hosslander Chemical Company. It is reported that the liabilities are \$80,000, and the assets \$60,000.

The Self-Heating Washer.

The Self-Heating Washing Machine Company, Evansville, Ind., are introducing the above article, as herewith

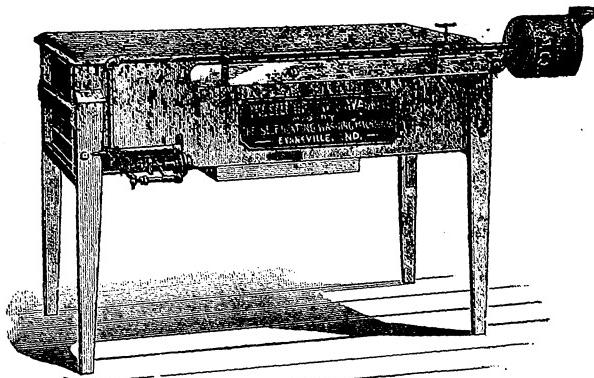


Fig. 2.—The Washer Closed.

shown. The washer is described as having the working parts made of oak, the box of hard maple and galvanized iron. The water is put into the washer,

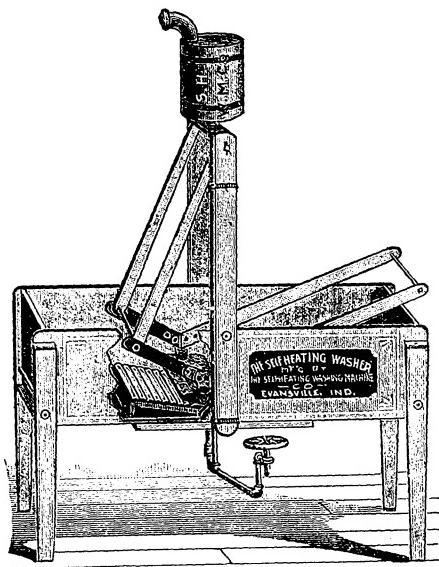


Fig. 1.—The Self-Heating Washer.

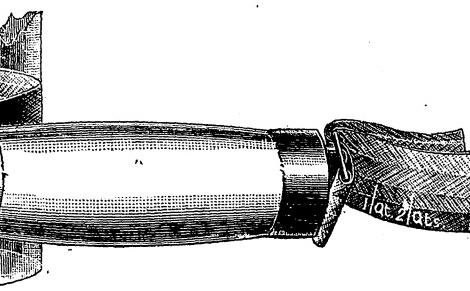
where the gasoline burner heats it, and keeps it hot as long as desired. The interior construction is shown in Fig. 1, which, it is remarked, is on the washboard principle, and rubs the dirt out.

and streaks. It is pointed out by the manufacturers that the operator can stand erect while using the washer; that a child ten years old can operate it; that it saves lifting clothes on and off a hot stove to boil them; that it

urer's customers and friends write or telegraph for information, and there is a great deal of worry for the owner of the plant, who should not be harassed at a time when he is trying to run his factory and furnish his employees with the means to procure bread and butter when his amount of available cash is limited by circumstances which he is powerless to control.

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Preserve-Jar Holder.

In operation the clothes are moved over the rollers in the roller bed by the rub board, the latter having holes in it, to cause the suction to force the hot suds through the garments; this, together with the rubbing, to remove all dirt

the general condition of affairs warrants. If a few men are laid off or if any steps toward economy and retrenchment are taken, the newspaper fiend at once sends out reports of a general and indefinite shut down. The manufac-

Pullers, Nail-

Scranton..... \$18.00, 38¢
Spart. No. 1..... \$18.00, 10¢
Spart. No. 2..... \$15.00, 10¢
Pelican..... \$12.00, 25¢
Eclipse..... \$12.00, 40¢
Economy..... \$12.00, 40¢

Pulleys-

Hot House Awning, &c..... 66¢ to 70¢
Japanned Screw..... 60¢ to 10¢
Brass Screw..... 70¢
Japanned Side..... 60¢ to 10¢
Moore's Side, Anti-Friction..... 50¢
Moore's Ceiling or End, Anti-Friction 40¢
Moore's Dumb Waiter, Anti-Friction 50¢
Moore's Electric Light..... 38¢
Japanned Clothes Line..... 60¢ to 10¢
Hay Fork, Solid Eye, \$4.00; Swivel,
\$4.50..... 50¢ to 10¢ to 10¢
Hay Fork, "Anti-Friction," 5 in. solid,
55.70..... 50¢
Hay Fork, "F" Common and Patent
Bushed..... 20¢
Hay Fork, Tarbox Pat. Iron..... 20¢
Hay Fork, Reed's Self-Lubricating..... 60¢
Hay Fork, "Acme's" Anti-Friction 5 in.
Wheel, # doz, \$12.00..... 40¢
Shade Rack..... 45¢
Tackel Blocks—See Blocks.
Shepard's Niagara, No. 25. # doz 28¢ net
Cash (Auger Mortise).
Common Sense..... 60¢
Empire..... 60¢
Ideal, Nos. 2, 4, 10 & 15..... 60¢ less 1¢
Acme..... { doz net.
Star.....
On bbl, lots extra 5¢.
Ideal, Nos. 25 and 55. # doz 22¢ net.

Pumps-

Cistern, Best Makers..... 60¢ to 80¢ to 10¢
Pitcher Spout, Best Makers..... 67¢ to 70¢
Pitcher Spout, Cheaper G'ds. 75¢ to 75¢ to 10¢

Punches-

Saddler's or Drive, good, # doz, 60¢ to 65¢
Bemis & Call Co.'s Cast Steel Drive, 50¢ to 55¢
Bemis & Call Co.'s Springfield Socket, 65¢
Spring, good quality, # doz, \$2.50 to \$2.60
Spring, Leach's Pat..... 15¢
Bemis & Call Co.'s Spring..... 50¢ to 55¢
Bemis & Call Co.'s Check..... 55¢
Solid Tinnings', P., S. & W. Co., # doz,
\$1.44..... 55¢
Tinnings' Hollow Punches, P., S. & W.
Co..... 20¢ to 25¢
Rice Hand Punches..... 15¢
Avery's Revolving..... 40¢
Avery's Sawset and Punch—See Sawsets
Niagara Hollow Punches..... 20¢ to 25¢
Niagara Solid Punches..... 55¢

Rail-

Gilding Door, Wr't Brass, # ft, 35¢, 40¢
Gilding Door, Bronzed Wr't Iron, # ft, 7¢
Gilding Door, Iron, Painted, # ft, 4¢, 40¢
Door, Light, In, 1/4, 1/2, 3/4
Per 100 feet..... \$2.00 2.50 3.10, 10¢
B. D. for N. E. Hangers—
Small, Med. Large
Per 100 feet..... \$3.15 2.70 3.25 Net
Terry's Steel Rail..... # ft, 4¢
Victor Track Rail, 7¢ # foot..... 50¢ to 55¢
Carrier, double braced, Steel Rail, #
foot..... 3¢ to 4¢
Lundy Parlor Door, Planed Edge, # ft, 7¢
Moore's Steel Rail..... 25¢ to 10¢
Moody Steel Rail, # ft, 5¢..... 45¢

Rakes-

Cast Steel, Association g'ds. 70¢ to 70¢ & 2¢
Cast Steel, outside g'ds. 70¢ to 70¢ & 2¢
Malleable..... 70¢ to 70¢
Gibbs' Lawn Rake..... \$4.00
Gibbs' Canton Lawn Rake..... \$3.75
Gibbs' Acme Lawn Rake..... \$4.75
Gibbs' Favorite Lawn Rake. # doz, \$3.00
Gibbs' Crown Lawn Rake, No. 1.....
doz, \$4.00; No. 2, \$5.40
Oneida Lawn Rake..... # doz, \$6.00
Fort Madison Prize Bow Brace and
Peerless..... 65¢
Fort Madison Steel Tooth Lawn Rake,
60.00..... 25¢

Razors-

J. R. Torrey Razor Co..... 20¢
Wostenholm and Butcher, \$10 to 2¢, 10¢
Jordan's A. new list..... Net
Jordan's Old Faithful, new list..... Net
Galvanite..... # doz, \$16.00
Electric Cutlery Co. Net
Campbell Cutlery Co. 60¢

Razor Straps—

See Straps, Razor.

Registers —

Moore's Japanned..... 75¢
Moore's Electropolated..... 75¢
Moore's Bronze Finishes..... 70¢
Moore's Solid Bronze..... 65¢
Moore's Stove Pipe..... 39¢ to 5¢

Rings and Ringers—**Bull Rings—**

Union Nut Co. 55¢
Sargent's..... 75¢ to 10¢
Hotchkiss' low list..... 30¢
Humason, Buckley & Co.'s..... 70¢ to 10¢
Pek Stow & W. Co.'s. 50¢ to 10¢ to 60¢ to 10¢
Elhrich Hdw. Co. White Metal, low list,
50¢ to 60¢ to 10¢

Hog—

Top of the Hill Ringers..... # doz \$2.00
Top of the Hill Rings..... # doz \$1.25
Hill's Improved Ringers..... # doz \$1.25
Hill's Old Style Ringers..... # doz \$1.25¢
Hill's Tongs..... # doz \$3.00
Hill's Rings..... # doz bx \$1.00
Perfect Rings..... # doz bx \$1.50
Perfect Ringers..... # doz bx \$2.25
Blair's Hog Ringers..... # doz \$2.00
Blair's Hog Rings..... # doz \$0.6¢ to \$1.00
Champion Ringers..... # doz \$2.00
Champion Rings, Double..... # doz \$2.20
Brown's Rings..... # doz \$2.00
Brown's Rings..... # doz \$1.15 to \$1.20
Electric Hog Rings..... # doz boxes \$1.50
Electric Hog Ringers..... # doz \$2.00
Major Rings..... # doz \$1.25
Major Rings..... # doz \$2.00

Rivets and Burrs—

Norway Iron, list Nov. 17, '87.... 60¢ to 10¢
Second quality..... 70¢
Copper..... 60¢ to 60¢ to 10¢
Coppered Iron, Bettina Brand.... 50¢ to 5¢

Rivet Sets—See Sets.**Roasting and Baking Pans—See Pans, Roasting and Baking.****Rods—**

Hair, Brass..... 25¢ to 30¢
Hair, Black Walnut..... # doz 40¢

Rollers—

Barn Door, Sargent's list..... 60¢ to 10¢ to 10¢
A. M. Moore's Anti-Friction..... 55¢
Union Barn Door Roller..... 70¢
Moore's Barn Door Stay..... 50¢
Thompson Mfg. Co.'s Lawn Rollers..... 50¢

Rope—The following prices are f.o.b.
New York or factory, and are shaded
in bold type on large lots; terms, 1 1/2% for
cash.

Manila, 7-10 in. diam. and larger..... \$14¢
Manila, 1/4 and 5-10 in. # doz 9¢

Manila, Tarred Rope..... # doz 9¢

Manila, Hay Rope..... # doz 7¢

Sisal, 7-16 inch and larger..... # doz 7¢

Sisal, 1/4 and 5-16 in. # doz 7¢

Sisal, Hay Rope..... # doz 7¢

Sisal, Medium Lat Yarn..... # doz 6¢

New Zealand, 7-16 in. & larger..... # doz 6¢

New Zealand, Hay Rope..... # doz 6¢

Cotton Rope..... # doz 13¢ to 16¢

Jute Rope..... # doz 6¢ to 7¢

List January 1, 1891.

Flat Head Iron..... 70¢

Round Head Iron..... 65¢

Flat Head Brass..... 70¢ or 10¢

Round Head Brass..... 65¢ 10¢ given.

Flat Head Bronze..... 70¢

Round Head, Bronze: .. 65¢

Rogers' Drive Screws..... 82¢

Scroll Saws—See Saws, Scroll.

Scythes—

Grain..... 40¢ to 40¢ to 10¢

Grass..... 40¢ to 20¢ to 50¢

Scythe Snaths—

See Snaths, Scythe.

Sets—**Awl and Tool—**

Aiken's Sets, Awls and Tools,
No. 20, # doz \$10.00..... 60¢ to 60¢ to 5¢

Fray's Adj. Tool Hds., Nos. 1, 12, 2, \$18;
\$12, 4, \$9..... 45¢

Millers Falls Adj. Tool Hds.,
Nos. 1, 12, 2, \$18..... 25¢

Henry's Combination Haft..... # doz \$5.50

Stanley's Excelsior:
No. 1, \$7.50; No. 2, \$4.00; No. 3,
\$5.50..... 30¢ to 10¢

Common Brad Sets,
No. 42, \$10.50; No. 43, \$12.50.... 70¢ to 10¢ to 5¢

Nail—

Square..... # gr. \$4.00 to \$4.25

Round..... # gr. \$3.25

Buck Bros..... 27¢

Cannon's Diamond Point..... # gr. \$12.20

Rivet—

Regular list..... 70¢

Saw—

Stillman's Genuine, # doz \$5.00 to 7.75

Cross Cut, # doz 55¢ to 55¢ to 10¢

Common Lever..... # doz \$2.00, 45¢ to 50¢

Morrill's No. 1, \$15.00..... 40¢ to 20¢

No. 11, \$16.00..... 40¢ to 20¢

Nos. 3 and 4, Cross Cut, \$23.00..... 40¢ to 20¢

No. 5, Mill, \$31.00..... 40¢ to 20¢

No. 10, \$15.50..... 40¢ to 20¢

Leach's, No. 0, \$8.00; No. 1, \$15.15..... 15¢ to 25¢

Nash's..... 20¢ to 10¢ to 10¢ to 10¢

Hammer, Hotchkiss..... \$5.00, 10¢

Bemis, Bemis & Call's new Pat. 45¢

Bemis & Call's Cross Cut..... 20¢

Aiken's Genuine..... \$18.00, 55¢ to 55¢ to 10¢

Aiken's Imitation..... \$9.00, 55¢ to 55¢ to 10¢

Hart's Pat. Lever..... 20¢

Leopold..... 40¢ to 10¢ to 5¢

Atkin's Lever..... # doz No. 1, \$3.00

Atkin's Criterion..... # doz No. 1, \$3.00

Croissant (Keller), No. 1, \$15.00; No. 2,
\$24.00..... 40¢ to 10¢ to 5¢

Avery's Saw Set and Punch..... 50¢

Kohler's Royal..... # doz \$7.00

Kohler's Giant Royal..... # doz \$12.00

Crescent..... # doz \$3.00

Lloyd's Acme..... # doz \$16, 40¢ to 10¢

Taintor Positive..... # doz \$18, 50¢

Sharpeners, Knife—

Larkins', Applewood Handles, # com. \$6.00, 40¢

Rosewood or Cocobola, # doz \$9.00 40¢

Shaves, Spoke—

Iron..... 45¢

Wood..... 30¢

Bailey's (Stanley R. & L. Co.)..... 40¢ to 10¢

Stearns'..... 30¢ to 10¢

Cincinnati..... 25¢ to 10¢

Goodell's # doz \$9.00..... 25¢

Shears—

American (Cast) Iron.... 75¢ to 10¢ to 75¢ to 10¢

Barnard's Lamp Trimmers. # doz \$3.75

Seymour's, List Dec. 1881.

60¢ to 10¢ to 10¢ to 10¢ to 10¢

Heimlich's, List Dec. 1881.

60¢ to 10¢ to 10¢ to 10¢ to 10¢

Heimlich's Tailor's Shears..... \$3.75

Cast Steel Trimmers:

First quality..... 80¢ to 80¢ to 10¢

Second quality..... 80¢ to 80¢ to 10¢ to 10¢

Acme Cast Shears..... 10¢ to 10¢

Diamond Cast Shears..... 10¢ to 10¢

Victor Cast Shears..... 75¢ to 10¢ to 75¢ to 10¢

Steel..... 40¢

Hatch Cutlery Co., Solid Steel Forged, 60¢

Davenport Cutlery Co. 60¢ to 60¢ to 10¢

Clauss brand, Nickelized, same list..... 60¢

Galvanic 3/4 to 9 in., # doz. \$1.00 40¢

Electric Cutlery Co. Net

National Cutlery Co. Net

Campbell Cutlery Co., Jap'd. 75¢

Nickel Plated..... 65¢

Tinners' Snips—

Wt. Handles, Steel Blades, ... 20¢ to 20¢ to 10¢

Niagara Snips and Shears..... 20¢ to 20¢ to 10¢

Cast Handles, Laid with Steel..... 40¢

Screw Drivers—

See Drivers, Screw

Screws—**Bench and Hand—**

Bench, Iron..... 55¢ to 10¢ to 55¢ to 10¢

Bench, Wood, Beech..... # doz \$2.25

Bench, Wood, Hickory..... 50¢ to 55¢

Hand, Wood, 25¢ to 10¢ to 25¢ to 10¢

Hand, Grand Rapids, list..... 35¢

Coach, Lag and Hand-Rail—

Lag, Blunt Point, list Jan. 1, 1890.

80¢ to 80¢ to 10¢

Coach and Lag, Gimlet Point, list Jan.

1, 1890. 80¢ to 80¢ to 5¢

Hand Rail, Sargent's..... 70¢ to 10¢

Hand Rail, H. & B. Mfg. Co. 70¢ to 10¢ to 75¢

Levin Pruner No. 1, \$15.00 # doz. 40¢ to 35¢

Levin Pruner No. 2, \$21.00 # doz. 40¢ to 35¢

Hand Rail, Am. Screw..... 75¢

Pruning Shears and Hook

Dixson's Combined Pruning Hook

and Saw.... # doz. \$18.00, 20¢ to 10¢

Dixson's Pruning Hook, # doz. \$12.00

20¢ to 10¢

E.S. Lee & Co.'s Pruning Tools, 50¢ to 10¢ to 5¢

Pruning Shears, Henry's Pat. # doz.

\$3.75 to 10¢ to 5¢

Henry's Pruning Shears, # doz. \$2.25

20¢ to 10¢ to 5¢

Wheeler, M. & C. Co., Combination

doz. \$12.00

Dunlap's Saw and Chisel, # doz. \$3.50, 30¢

J. Mallinson & Co., No. 1, \$6.25; No. 2, 7.25

75¢

P. S. & W. Co. 60¢

Levin Pruner No. 1, \$15.00 # doz. 40¢ to 35¢

Levin Pruner No. 2, \$21.00 # doz. 40¢ to 35¢

Hand Rail, Am. Screw..... 75¢

Tinners', &c.—

Shears and Snips (P. S. & W.).... 20¢ to 15¢

Snips, J. Mallinson & Co. 35¢ to 30¢

Sheaves—

Sliding Door—

M. W. Co., list July 1888. 50¢ to 10¢ to 5¢

R. & E., list Dec. 18, 1886. 55¢ to 30

CURRENT METAL PRICES.

AUGUST 16, 1893.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron:
1 to 2 in. round and square... \$ D 1.80 @ 1.90¢

Refined Iron:

1 to 2 in. round and square... \$ D 1.90 @ 2.00¢

1 to 4 in. x 3/8 to 1 in. \$ D 1.90 @ 2.00¢

4 to 6 in. x 3/8 to 1 in. \$ D 2.10 @ 2.20¢

Beds— $\frac{1}{2}$ and 1-1/2 round and sq. \$ D 2.00 @ 2.10¢

Bands—1 to 6 x 3-1/2 to No. 12. \$ D 2.20 @ 2.30¢

"Burden Best" Iron, base price. \$ D 3.00¢

Burden's "H. B. & S." Iron,
base price. \$ D 2.80¢

"Ulster" \$ D 3.00¢

Norway Bars \$ D 3.75 @ 4.00¢

Norway Shapes 4.50 @ 5.00¢

Merchant Steel from Store—

Per lb

Open-Hearth and Bessemer Machinery,
Tire Calk, Tire and Sleigh Shoe, base
price in small lots 2½¢

Best Cast Steel, base price in small lots. 8¢

Best Cast Steel Machinery, base price in
small lots 5¢

Sheet Iron from Store—

Black—

Best Refined Iron.

Nos. 14 to 20 2.75 @ 2.85¢

21 to 24 2.90 @ 3.00¢

25 to 26 3.15 @ 3.20¢

27 3.30 @ 3.40¢

28 3.40 @ 3.50¢

Common 4¢ less than the above.

Open Hearth Steel.

Best Soft Steel, Nos. 14 to 16 2.15 @ 2.25¢

" " 18 to 20 2.25 @ 2.35¢

" " 21 to 24 3.15 @ 3.15¢

" " 25 to 26 3.35 @ 3.35¢

" " 27 to 28 3.35 @ 3.35¢

Best Bloom Sheets, 1/4 extra over above prices.

Best Bloom, Galvanized, dis. 70¢ @ 70 & 10/2

Ordinary Bessemer, 1/4¢ @ 1/4¢ lower than
above prices.

Russia, Planished, &c.

Genuine Russia, according to
assortment \$ D 12¢ @ 13¢

Patent Planished \$ D A. 10¢; B. 9¢; C. 5¢

Craig Polished Sheet Steel \$ D, 8½¢

English Steel from Store—

Best Cast \$ D 15¢

Extra Cast \$ D 16½ @ 17¢

Swaged, Cast \$ D 16

Best Double Shear \$ D 15

Blister, 1st quality \$ D 12

German Steel, Best \$ D 10

2d quality \$ D 9

3d quality \$ D 8

Sheet Cast Steel, 1st quality \$ D 15

2d quality \$ D 14

3d quality \$ D 12½¢

R. Mushet's "Special". \$ D 45

" " Titnico" Annealed \$ D 75

" " Titnico" \$ D 20

METALS—

TIN—

Per lb

Banca, Pigs 21½¢

Straits, Pigs 20½¢ @ 21¢

Straits in Bars 22¢

Tin Plates—

Duty: 2.2¢ \$ D.

Charcoal Plates—Bright—

Guaranteed Plates command special prices
according to quality. Per box.

Melvin and Calland Grade. IC, 10 x 14. @ 6.50

" " " " IC, 12 x 12. @ 6.75

" " " " IC, 14 x 20. @ 6.50

" " " " IC, 20 x 28. @ 13.00

" " " " IX, 10 x 14. @ 8.50

" " " " IX, 12 x 12. @ 8.75

" " " " IX, 14 x 20. @ 8.50

" " " " IX, 20 x 28. @ 17.00

" " DC, 12 x 17. @ 6.00

" " DC, 12 x 17. @ 8.00

Allaway Grade..... IC, 10 x 14. @ 8.00

" " IC, 12 x 12. @ 6.25

" " IC, 14 x 20. @ 6.00

" " IC, 20 x 28. @ 12.00

" " IX, 10 x 14. @ 7.50

" " IX, 12 x 12. @ 7.75

" " IX, 14 x 20. @ 7.50

" " IX, 20 x 28. @ 15.00

" " DC, 12 x 17. @ 5.50

" " DC, 12 x 17. @ 7.00

Coke Plates—Bright—

Steel Coke.—IC, 10 x 14, 14 x 20. \$5.40 @

10 x 20. @ 8.50

20 x 28. @ 11.50

12.00

IX, 10 x 14, 14 x 20. @ 7.00

BV Grade.—IC, 10 x 14, 14 x 20. @ 5.50

Charcoal Plates—Terne—

Guaranteed Plates command special prices
according to quality.

Dean Grade.—IC, 14 x 20. @ 5.65

20 x 28. @ 11.00

IX, 14 x 20. @ 8.40

20 x 28. @ 12.80

Abecarne Grade.—IC, 14 x 20. @ 10.75

20 x 28. @ 6.40

IX 14 x 20. @ 12.80

Tin Boiler Plates—

IXX, 4 x 28. 112 sheets. @ 18.35

IXX, 14 x 28. 112 sheets. @ 14.50

IXX, 14 x 31. 112 sheets. @ 16.00

American Terne Plates.—Apollo.

IO, 14 x 20. @ 6.25

IO, 20 x 28. @ 12.50

IX, 14 x 20. @ 7.25

IX, 20 x 23. @ 14.50

Copper—

DUTY: Pig, Bar and Ingot, 1½¢; Old Copper, 1¢ \$ D. Manufactured (including all articles of which Copper is a component of chief value), 3½¢ ad valorem.

Ingot—

Lake. @ 11¢

Ansonia grade Arizona. @ 10½¢

Ansonia grade Casting. @ 10¢

Sheet and Bolt—

Prices adopted by the Association of Copper Manufacturers of the United States, May 18, 1892. Subject to a discount of 15% @ 25%, according to size of order.

Weights per sq. foot and prices per pound.

Not wider than

Over 64 oz.

32 to 64 oz.

16 to 32 oz.

14 to 16 oz.

12 to 14 oz.

10 to 12 oz.

8 to 10 oz.

Less than 8 oz.

| Common High Brass: | in. |
|-----------------------------|-----|-----|-----|-----|-----|-----|-----|
| Wider than and including | 24 | 28 | 30 | 32 | 34 | 36 | 38 |
| | 26 | 28 | 30 | 32 | 34 | 36 | 38 |
| To No. 20, inclusive. | .36 | .38 | .42 | .46 | .50 | .55 | .60 |
| Nos. 21, 22, 23 and 24. | .37 | .40 | .43 | .47 | .51 | .56 | .61 |
| Nos. 25 and 26. | .38 | .41 | .44 | .48 | .52 | .57 | .63 |
| Nos. 27 and 28. | .39 | .42 | .45 | .49 | .53 | .58 | .65 |

Discount from List 15% to 25%.

Brass and Copper Wire—

List January 17, 1884.

| Numbered by Stubs' gauge. | Soft & hard brass. | Spring high brass. | Low brass. | Copper. |
|--------------------------------|--------------------|--------------------|------------|---------|
| All Nos. to No. 16, inclusive. | \$0.22 | \$0.24 | \$0.26 | \$0.30 |
| No. 17 and No. 18. | .23 | .25 | .27 | .31 |
| No. 19 and No. 20. | .24 | .26 | .28 | .33 |
| No. 21, or 0.032 diameter. | .25 | .27 | .29 | .33 |

Discount 15% to 25%.

Fine Numbers.

| Numbered by London gauge. | Brass. | Spring high brass. | Low brass. | Copper. |
|---------------------------|--------|--------------------|------------|---------|
| No. 22. | \$0.26 | \$0.28 | \$0.30 | \$0.34 |
| No. 23. | .28 | .30 | .32 | .36 |
| No. 24. | .30 | .32 | .34 | .38 |
| No. 25. | .32 | .34 | .36 | .40 |
| No. 26. | .35 | .37 | .39 | .43 |
| No. 27. | .38 | .40 | .42 | .46 |
| No. 28. | .42 | .44 | .46 | .51 |
| No. 29. | .45 | .47 | .49 | .54 |
| No. 30. | .48 | .50 | .52 | .58 |
| No. 31. | .51 | .53 | .55 | .67 |
| No. 32. | .55 | .57 | .59 | .78 |
| No. 33. | .59 | .61 | .63 | .88 |
| No. 34. | .64 | .66 | .68 | .95 |
| No. 35. | .70 | .72 | .74 | 1.30 |
| No. 36. | .76 | .78 | .80 | 1.50 |
| No. 37. | 1.00 | 1.02 | 1.04 | 1.70 |
| No. 38. | 1.30 | 1.32 | 1.34 | 2.00 |
| No. 39. | 2.00 | 2.02 | 2.06 | 3.25 |
| No. 40. | 2.60 | 2.62 | 2.66 | 5.75 |

—% discount.

Spring Wire, 2¢ \$ D advance.

Copper Belt and Hose Rivets and Burrs—

Per lb.

| No. 5. | 10½¢ | No. 11. | 56¢ |
|---------|------|---------------------|-----|
| No. 6. | 10¢ | No. 12. | 54¢ |
| No. 7. | 9½¢ | No. 13. | 52¢ |
| No. 8. | 9½¢ | No. 14. | 50¢ |
| No. 9. | 9½¢ | No. 15. | 70¢ |
| No. 10. | 10¢ | 60¢ @ 6½% discount. | |

Tobin Bronze Rods.

Drawn Rods for Bolts, Forgings, &c.

Over 3½ inches inclusive. 17¢ \$ D

Over 3½ to 5 inches inclusive. 18¢ \$ D

Piston Rods, Finished True, Smooth and Straight.

3½ to 5 inches inclusive. 18¢ \$ D

Over 3½ to 5 inches inclusive. 19¢ \$ D

Spelter

Duty: Pig, Bars and Plates, \$1.50 \$ D 100 lb.

Western Spelter. 5¢ @ 5½¢

Bertha (pure). .8¢

Zinc—

Duty: Sheet, 2½¢ \$ D.

600 lb casks. .6¼¢

Per lb. .7¢

Lead—

Duty: Pig, \$2 \$ D 100 lb. Old Lead, 2¢ \$ D. Pipe and Sheets, 2½¢ \$ D.

American Pig. .4¢

Bar. .4½¢

Pipe, subject to discount 20%.

Tin-Lined Pipe, subject to discount 20%. .15¢

Block Tin Pipe, subject to discount 20

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